Current and future ergonomic contributions to the world can be judged by many criteria. It is argued here that one viable criterion is our ability to apply our profession to those who can benefit most in industrially developing countries (IDCs). Through its network of researchers and practitioners in industrially developed and developing countries, the International Ergonomics Association provides means for ergonomists to contribute to shaping the future. The IEA’s relationships with non-governmental organizations, its 49 federated societies, and projects in IDCs provide a myriad of opportunities for ergonomists to make a difference. JES has a rich history contributing generously in the governance and development of ergonomics throughout the world through the IEA.

1. Civilized Society
A story about the great anthropologist Margaret Meade provides a good definition for a civilized society. A student asks the great teacher what is the earliest sign of civilization in a culture. He expected that the answer might be a technological advance such as a fishhook or a grinding stone or perhaps a clay pot. To his surprise her answer was “a healed femur.” She explained that there could be no healed femurs where the law of the jungle or survival of the fittest determines human existence. A healed femur shows that someone cared enough for the injured person to do their hunting, gathering and nursing. Evidence of compassion is the first sign of civilization. (1)

While we may define modern civilization by cleanliness, ease of use, economic accessibility, technology or communication, this story poses a different criterion for our assessment of advancement. Many years ago we wrote about how ergonomics, and particularly participatory ergonomics, improved work by making it safer, cleaner and less dangerous (2). This may no longer be a sufficient condition to judge our advancement as a civilized society.

Perhaps we should assess our progress using Robert Burns’ suggestion of “seeing ourselves as others see us.” Alien beings may provide a more impartial perspective of our world as we live in it today. They would find the marks of advanced societies in our transportation systems, communication devices, ability to make goods to satisfy human needs, capacity to grow and sell food in large department stores and supermarkets, and the ability to afford these fruits of civilization at reasonable prices. At the same time, they would also find splints, medical records and assistive devices that tell of injury and human suffering; some of which were caused in the delivery of the same elements that define the advanced society. They may be able to detect the social isolation and loneliness that comes from an electronically advanced, but socially disconnected world. Unable to understand geographic or nation-state boundaries, they would define us as one civilization. What conclusions could be drawn about our civilization?

We might be described as advanced or smart. We might also be judged as lacking compassion and being uncaring to some members of our world.

Ergonomic contributions. Clearly there are signs of ergonomic contributions to civilized society. Adjustable workstations are a sign of compassion and caring that allow people to sit or work comfortably. Assistive lifting devices reduce energy requirements and injury risks. Logical information flows reduce the amount of mental translations required to make decisions. Efficient work flows increase productivity, competitiveness and reduce frustration by those who work in these systems. Rehabilitation tools and devices make it easier for those with disabilities to access systems. These are a few of our contributions to a civilized society.

2. Ergonomics in the Future

Where we go from here is the more important question. Boff (3) describes four generations of ergonomics. Ergonomics can: 1) change simple tools to adapt to human characteristics; 2) harmonize humans and technology for appropriate cognitive fit; 3) optimize human physiological and cognitive capabilities in harmonized systems; and 4) possibly alter humans biologically to enhance human and system performance. We have been doing the first two and started the third and fourth stages. The transition between these developments will not be easy.

The other 80%. While these potential contributions are exciting, what we do with these energies may be more important. Perhaps the biggest beneficiaries of ergonomic technologies may be the other 80%. That is, while most of our knowledge is generated in industrially developed countries (20%), those who could benefit the most from this knowledge live in Industrially Developing Countries (IDCs). How this large group benefits from ergonomics may define our advancement as a civilization.

There is good evidence that ergonomics can be used effectively to improve the quality of peoples’
lives and their economic viability in IDCs. Kogi and his colleagues have implemented successful ergonomic interventions (4). Using checkpoints, small workshops and train-the-trainer techniques, Kogi has produced unprecedented results in spreading ergonomics in IDCs. This work, has trained thousands of workers in small enterprises, home workers, farmers, workers in construction, health care, service and manufacturing on ergonomic principles. This work has prevented countless injuries and human suffering, improved productivity and created competitive enterprises. This is arguably the most successful large-scale ergonomic intervention.

In 2009, the winning entry in the International Ergonomics Association Association (IEA) Liberty Mutual Award competition was from an Indian researcher who demonstrated how ergonomics improved the lives of women in rural India. Simple changes built on well-established ergonomic principles can affect thousands of lives with low cost solutions. As with most system interventions, these ergonomic changes allow every day tasks to be carried out more efficiently and effectively. This has the possibility of affecting the lives of not only women today, but also generations yet to be born.

3. Getting Involved in Shaping the Future
What can we do to shape the future of a profession? More importantly, what can we do as individuals with good intentions but limited resources? We do not have the time or resources to travel to IDCs to work on particular projects. Nor do we have the capacity to make a contribution even if we had the resources and time to devote to IDCs.

This is where the International Ergonomics Association can help. Fortunately, because the Japanese Ergonomics Society (JES) is a federated society of the IEA, individual members are automatically IEA members. The IEA represents more than 25,000 ergonomists who belong to our international community of professionals. These include the researchers around the world doing important work to advance our knowledge and increase our footprint that defines our profession. IEA also connects these researchers to the many organizations that have important roles in our world today. As NGO partners, the IEA looks to organizations such as the International Organization for Standardization (ISO) and the European Committee for Standardization (CEN). The ISO was invited and accepted the invitation to attend the IEA Congress in Beijing. Joint events were held and we are developing relationships as a basis for further involvement in setting standards as they relate to ergonomics.

IDCs. The IEA is committed to the spread of ergonomics in IDCs. The first initiative through lighthouse projects. These are special projects we have identified as ways to lead the way and build synergies for other projects. Barbara Silverstein, who is an Executive Committee member, is spearheading a project to redesign a coffee bean harvesting basket to be used in Central America. Working together with growers and workers, this project will use a participatory ergonomic strategy to improve the working conditions, safety, and productivity of the coffee bean harvesting process. We are in the process of securing initial funding for this project through an alliance of coffee bean growers. This project has the capability to improve the human condition and the enterprises’ competitiveness.

The IEA is finalizing a Memorandum of Understanding with the Foundation for Professional Ergonomics on a project called “Ergonomists without Borders” which is modeled after the now famous Médecins sans Frontières. Together Ergonomists without Borders and the IEA will identify projects requiring ergonomic expertise, talent and resources and serve as a nexus for bringing together those with ergonomic needs and those who can fulfill those needs. This is will be a way for ergonomists to become involved in improving the conditions for many who need it most.

Governance. Japanese ergonomists have a rich history of involvement in the IEA that current members can follow. Professor Sadao Sugiyama served as IEA President from 1982-85, Dr. Kazutaka Kogi served as Treasurer from 1997-2003. For many years the late Professor Munehira Akita and JES President Susumu Saito represented the JES on IEA Council. Current representatives from JES to the IEA are Professor Yoshinori Horie, Professor Yusaku Okada, and Professor Kentaro Kotani. Dr. Yushi Fujita currently serves on the Executive Committee as Chair of the Professional Standards and Education Committee. The contributions of its members have advanced our profession internationally. If organizational governance is your strength, your contributions are welcomed in this arena.

Support. Even if you are able to participate directly through actions or governance, involvement is possible by supporting the IEA through JES and financially. We appreciate the strong support that JES has provided, especially in the recent past. As one of the three largest ergonomic societies in the world, the international community values JES commitment and support. Support can also come from companies and individuals by becoming IEA Sustaining Members. This financial support is vital to the work that the IEA hopes to accomplish in the near future.
4. Conclusion
How we are judged as a profession may depend more on how we use our technology rather than the knowledge itself. How we are judged may depend on our ability to deliver this knowledge and experience to the rest of the world with compassion. We have the unique perspective to simultaneously improve the human condition, the system’s economic viability and competitiveness at the same time. Perhaps this will allow us to be judged as a civilized society.

References