

Global Peace Services USA

...an idea whose time has come

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Greetings from John Eriksson, President, GPS USA

This issue of the GPS Newsletter opens with a thoughtful and provocative review by GPS Board Member Dr. Robert J. Muscat of the recent seminal volume, The Better Angels of our Nature: Why Violence has Declined, by Professor Steven Pinker of Harvard University.

The review is followed by a synopsis of a creative case study, “Engineering to Prevent Conflict,” written by William R. Lenart, an engineering graduate student at Case Western Reserve University. The case study provided the primary discussion material for a workshop moderated by GPS Board Member Dr. Mindy C. Reiser at a session of the North Central Section of the American Society of Engineering Education (ASEE) held in Cincinnati on April 17, 2015. The underlying core workshop paper, “Peace and Conflict: Engineering Responsibilities and Opportunities,” by Dr. Muscat, was also the subject of a presentation by Dr. John Eriksson at an ASEE workshop in Iowa last October. Dr. Muscat drew from both these events in presenting a revised version of his paper at the Annual Conference of the ASEE in Seattle on June 15, 2015. Nearly 3,000 engineers and engineering educators from around the country attended the conference. Over 30 attended Dr. Muscat’s presentation, which was followed by comments from a panel of professional engineers. There was strong interest in the presentation, evidenced by many comments and questions and an extension of the discussion by 15 minutes to permit individual conversations with the speakers. GPS looks forward to drawing from these experiences to explore consideration in engineering education of the role of engineers in ameliorating and preventing violent conflict.

GPS Board member, Dr. Sovan Tun departed June 21 for a trip to Rome, the Vatican, and Germany, to explore the role of U.S. Buddhists in promoting peace and exchanging views. The itinerary included an audience with Pope Francis. The GPS Board is very happy for Dr. Sovan and this honor bestowed on him. We look forward to his sharing his experiences with us in a late August GPS gathering at the Cambodian Buddhist Temple in Silver Spring, MD (tentatively scheduled for August 22). Further details will follow closer to the date of the event.

We hope that most, if not all, recipients of the GPS Newsletter who are also on email have by now received the GPS “Peace Dispatch.” However, if you are on email but have not yet received the Peace Dispatch, please let us know by sending your email address to globalpeaceservicesusa@gmail.com or by sending a note to P.O. Box 27922 in Washington, DC 20038-7922. Peace Dispatch is a convenient monthly e-mail highlighting current books, articles, films, conferences and other events with a focus on the varied dimensions of peacemaking and peacebuilding. We welcome your feedback on this initiative.

The Demons Seem to be Losing

A review of Steven Pinker's *The Better Angels of our Nature: Why Violence has Declined*. New York: Viking, 2011.

Steven Pinker, Harvard University psychologist and cognitive scientist, has written a book that should be must reading for anyone concerned about the question that arches over us all; namely, is humanity experiencing moral progress or regression? Although Pinker writes lucidly, *The Better Angels of Our Nature: Why Violence Has Declined* is not a quick read. It has a vast scope, draws on the work of scores of scholars – historians, psychologists, economists and other scientists – and runs to 700 pages. Pinker examines history, the data where available, and the changes in laws and social norms, over past centuries and over the past 60 years or so in particular, tracking individual and collective violence by category: child rearing, criminal punishment, murder, slavery, female inequality, homosexuality, racial pogroms, cruelty to animals, ritual killing, religious fanaticism – and outright warfare, terrorism, and genocide. He concludes that humanity's better angels are winning out over our demons.

His quantitative measures are relative: the number of violent incidents or deaths (in each category) as a percentage of the (relevant) populations. In many categories, the numbers have been declining for decades if not centuries, both absolutely and relative to increasing population. He dismisses changing human genetics as a cause (the time-frame is too short). He devotes most of the book to thinking about why this “humanitarian revolution,” or “civilizing process,” has occurred. As you would expect in such a complex inquiry, Pinker's explanations are more convincing in some areas than others. He considers improving governance, economic advances, education, the role of leading thinkers, and the spread of communications and science-based thinking as possible causal factors. Often, he claims only plausible causation, not certainty. He recognizes that not all regions or societies are undergoing this transformation along the same time line, or in the same manner.

Soon after publication in 2011, the book was seen as a major contribution toward understanding the dynamics of our age. Inevitably, many questions have been raised about his analysis. (You can read

some of these questions, and Pinker's responses, on his website.) To read this book now, after four years have passed, provides some added perspective. The world has seen events that test Pinker's optimistic thesis, especially the eruption of violence in the Middle East in deliberately shocking and barbarous forms. The warfare, sectarian slaughter, and rhetoric of violence trumpeted by the most extreme elements in the Islamic world have even exceeded al Qaida in rejecting the civilizing habits Pinker posits as having evolved since the 18th century Enlightenment: compromise, tolerance, the application of reason, democracy, and the discrediting of violence.

However, even in a bad near-term future – say, where this extremism continues expanding its reach in the region; where recruitment of disaffected young Muslims spreads around the world, and where these recruits return to spawn violence back home – Pinker's metrics would not be contradicted. This is because his measure of prevalence is relative; the number of worldwide violent incidents and the numbers of victims would continue to be small relative to the world's population. They would show up as mere blips in Pinker's graphs that track violence as the numerator over population as the denominator. Low-level violence by occasional suicide bombers could infect ever-larger areas that have had Muslim immigrations in recent decades; violence would be rising, certainly “spreading,” in the way people would ordinarily use the words, but the numbers would be too low to register as countervailing evidence to his main thesis. The metric could remain relatively low even if the denominator were limited, case by case, to the population of each country involved.

Nevertheless, I find Pinker's explanation of the civilizing and humanizing processes at work over many generations, especially in the “West,” insightful and convincing. (The evidence for Asia and Africa is less compelling, and there simply is less data for these regions). He makes a compelling case for the secular basis for this moral progress. Falling violence and rising humaneness have marked the historical era during which the hold of

religion has been declining. This is no guarantee, however, that civilization (or even only some swaths of civilization) is on an irreversible long-run path of moral improvement. History is full of surprises, of rises and falls. The resurgence of anti-Semitism in Europe, even resulting in violence, and once thought to be utterly discredited after the Holocaust, stands as a glaring exception to the “civilizing” process. Coming out just two years after Pinker’s book, historian Daniel Jonah Goldhagen’s 2013 book, *The Devil That Never Dies: The Rise and Threat of Global Antisemitism*, poses a deep pessimism regarding the progress of reason and moral sensibilities, in contrast to Pinker’s optimism. The spate of physical attacks on Jews in France and other European countries constitutes a rebirth and a spread of this particular category of violence. But the number of victims has been low; again, an example of violence that would barely register as a blip if charted simply as an arithmetic fraction.

The huge spike in violence in the last century’s two world wars, genocides, and ideological ferocities, and their accompanying slaughter of non-combatants, raise obvious challenges to Pinker’s broad conclusions. He acknowledges this immediately, but explains the sharp jumps in his charts for those years as one-time exceptions, “not harbingers of worse to come, nor a new normal to which the world would grow inured, but a local high from which it would

bumpily descend. And the ideologies behind them were not woven into modernity but atavisms that ended up in the dustbin of history.” He also appears to accept the judgment of some historians that without Hitler, Stalin, and Mao, the bloodbaths they initiated would not have occurred. (This might also apply to Pol Pot and the Khmer Rouge bloodbath.) However, this is not a reassuring hypothesis. What is to prevent similar future despots from seizing power, even inspiring mass support with new (or old) ideologies or hatreds, if bad times recur, and checks on power weaken? Is the civilizing process so fragile that it remains at risk to easy reversal? The fact of down-trending violence over many generations past would be small comfort in the face of recurring “blips” of such horrendous proportions.

Finally, it would be interesting to know if Pinker has looked at peace education and the whole conflict research/amelioration/resolution and prevention enterprise, to reach a judgment on the extent to which this largely post-WW II array of peace works has played a significant role in shaping the downward arc of violence. That would be especially interesting to Global Peace Service's members.

In sum, Pinker’s book is a must read. A brief review cannot do justice to its richness and depth.

Robert Muscat

Engineering to Prevent Conflict

Engineering is a “profession of integrated solutions” where we “must extract significant information from obscure sources” (Hollander and Kahl, 2010). As such, engineers can no longer work alone, worrying only about the technical requirements of their projects; rather they must understand their projects in a broader context and interact with a variety of stakeholders and change agents to create an effective, sustainable solution. Modern engineering education focuses almost entirely on preparing future engineers in how to design a project with supplied information, but the greatest challenges often come in collecting that information and

interpreting it in a complex environment of competing stakeholders. Frequently, a project’s true requirements involve the intricate interweaving of technical, environmental, and socio-economic factors. Technical robustness is not the only determinant of a project’s success; the lesson of many past projects is that operation and management plays an integral role in guaranteeing success. This requires engineers to be able to integrate into a larger social infrastructure that actively promotes transfer of knowledge between the beneficiaries and the technicians. Much of the

Gal Oya¹ rehabilitation project's success in Sri Lanka can be attributed to development officials' recognition of this fact as illustrated by Norman Uphoff in his assessment of the project,

“In the course of our work, we found that improvements made by farmer organizations could make engineers' attitudes and performance more positive, and such changes from the official side in turn encouraged water users to take more responsibility, which helped challenge and further change officials' negative stereotypes about farmers” (Uphoff, 1992).

Large-scale engineering projects, by design, make significant impacts on an area's economy, environment, and people. All too often, the effects on the environment and people are considered secondary to the economic impact, but this belittles the importance these factors have in producing a sustainable and peaceful outcome. Peace is fueled by positive human capital, which requires equitable access and distribution of resources and the guarantee of personal security. Lacking either will seriously destabilize a society and lead it down the road of conflict. Development projects can either reinforce these pillars of peace or lead to their deterioration. Building a strong foundation for peace requires the input of every stakeholder and as such, the technical requirements of a project cannot be designed solely from a top-down, national perspective. However, success still demands both political and bureaucratic support for a project to progress towards its intended goals. Thus, it is imperative that engineers have effective soft skills in addition to technical competency to be able to navigate the murky and turbulent waters of projects that may encounter underlying social tensions. Only after the concerns of the various stakeholders are

¹ Gal Oya is one of the greatest success stories of international development projects. The project was started in 1981 to rehabilitate the existing irrigation scheme in the Gal Oya basin as a co-operative effort between Sri Lanka's Agrarian Research and Training Institute, a government agency under the Agriculture Ministry, and Cornell University with funding support from the United States Agency for International Development. The goal was to improve the efficient use of resources, as well as the infrastructure. Dr. Norman Uphoff, one of the lead academics working on this project, recognized the importance of human capital as the most important element for a successful project—an approach which has inspired much of this paper.

understood and reconciled into a common framework, can the technical and economic goals have the greatest chance for success.

Competition over scarce resources is frequently a flashpoint in developing regions and fully accounting for a project's effect on environmental integrity and sustainability is indispensable for reducing tensions among stakeholders. Otherwise, the already inadequate resources may further be diminished resulting in a project exacerbating conflict rather than ameliorating it. A common method in engineering projects that significantly factors into the benefits-cost ratio is the accounting practice of present discounted value, yet frequently, such an approach does not adequately gauge the long-term benefits of environmental integrity, in terms of not only the overall environment, but also the social consequences. If a project slowly degrades a region, the impact may not be felt for many decades. In the case of irrigation projects, the money saved from reducing the robustness of a design can be considered of greater value than the eventual loss of agricultural land due to technical deficiencies, which may cause problems such as increased soil salinity. Environmental degradation leads to a loss of the irrigated farmland and the population must either move or face severe negative economic consequences that can lead to famine and regional instability.

To enable engineering students to deepen their understanding of the impact of their engineering solutions on heightening or diminishing conflict, having them develop detailed case studies of engineering interventions in areas with latent or manifest conflicts, could be a powerful pedagogical tool.

Upon Reflection

When reflecting upon the success or failure of a project, it is necessary to use a framework that assesses both the technical and socio-economic outcomes. The Organization for Economic Co-operation and Development's Development Assistance Committee outlines four pillars for evaluating a project in terms of conflict prevention and peacebuilding: (i) reform of justice and security institutions, (ii) socio-economic development, (iii) good governance, and (iv) truth, justice and reconciliation. Using this framework, it is possible to derive questions that get at the heart of the issues

that exacerbate conflict and can lead to violence. Answering the following questions provides greater insight into how conflicts arising in/ intensified by engineering projects could be prevented.

- Was there an equitable distribution of development benefits?
- Was there equitable access to services?
- Did the project promote sustainable use of and equitable access to natural resources?
- Was a participatory process used in designing, implementing, and evaluating the project?
- Were decisions made transparently with the perception of accountability?
- Were non-violent dispute resolution systems set-up or enhanced?

In any typical project, an engineer must ask three questions: (i) Who owns the project or sets the agenda? (ii) Whose knowledge counts in the design? and (iii) Who benefits?

The answers to these questions allow the engineer to navigate the politics of an average project to promote a successful outcome. While effective in promoting the success of the engineer's career and the progress of the project's development, these questions will fall short when faced with the stark reality of designing a successful large-scale development project in a complex underdeveloped multi-ethnic society. To succeed in such an environment, it is necessary to ask a slightly modified set of these questions. Who *should* own the project? Whose knowledge *should* count? Who *should* benefit? These questions may lead to a very different set of answers that engineers must then use to design a more inclusive project that is capable of success in the difficult reality of rural multi-ethnic societies. Unfortunately, many engineers do not have the expertise to fully answer these questions, nor should they be expected to. A successful project involves a variety of disciplines requiring engineers to work together with other change agents such as extension agents, social workers, institutional organizers, human rights groups, and various NGOs.

In addition to improving the technical infrastructure, it is important to build a robust social infrastructure composed of a variety of change agents such as extension agents and institutional organizers. Doing so would produce positive answers to many of the

proposed questions. "Organizations [are] the software needed to make the hardware of physical structures productive." Institutional organizers (IOs), such as those instrumental to the success of the Gal Oya project, can aid the farmers by helping them organize and better manage their water system and more cohesively communicate their needs as a unified voice granting them greater legitimacy. These farmer organizations would be capable of expressing their needs and the field realities to the engineers, initially with the help of IOs. Then the engineers can meet with the farmer organizations to explain the physical and cost restraints of the proposed changes, thereby promoting a collaborative environment. This two-way transfer of knowledge promotes an atmosphere of trust between the farmers and officials that leads to sustainable project outcomes. A successful project must promote a dialogue among the various groups to create a cooperative atmosphere. In doing so, conflicts can be resolved more peacefully, through legitimate channels, so long as the processes maintain transparency and accountability.

Implications for Engineering Education

"Engineers have a responsibility for defining problems when the environmental or human stakes are high and correcting the negative unintended consequences of past engineering mistakes." To get engineers to act as responsible agents of change, they must be educated in a more interdisciplinary, ethically-minded way. Concept maps, such as **Figure 1**, are an exceedingly helpful tool for identifying the multiple components of a project that cut across disciplines. This method does not require the expertise necessary for addressing each area, but it does allow for the identification of areas where change agents of other disciplines will be needed. Teaching the usefulness of this approach would be a simple addition to the curriculum of any engineering class with design projects.

The average engineer takes pride in their profession, as they should, but this can result in discrimination against the very people they are tasked with helping. At the onset of the Gal Oya project, local engineers would frequently refer to farmers as "those donkeys" and "those farmer buggers," but "once engineers had a rationale that preserved their professional self-respect, they made a change in their practices..." To prevent this type of behavior,

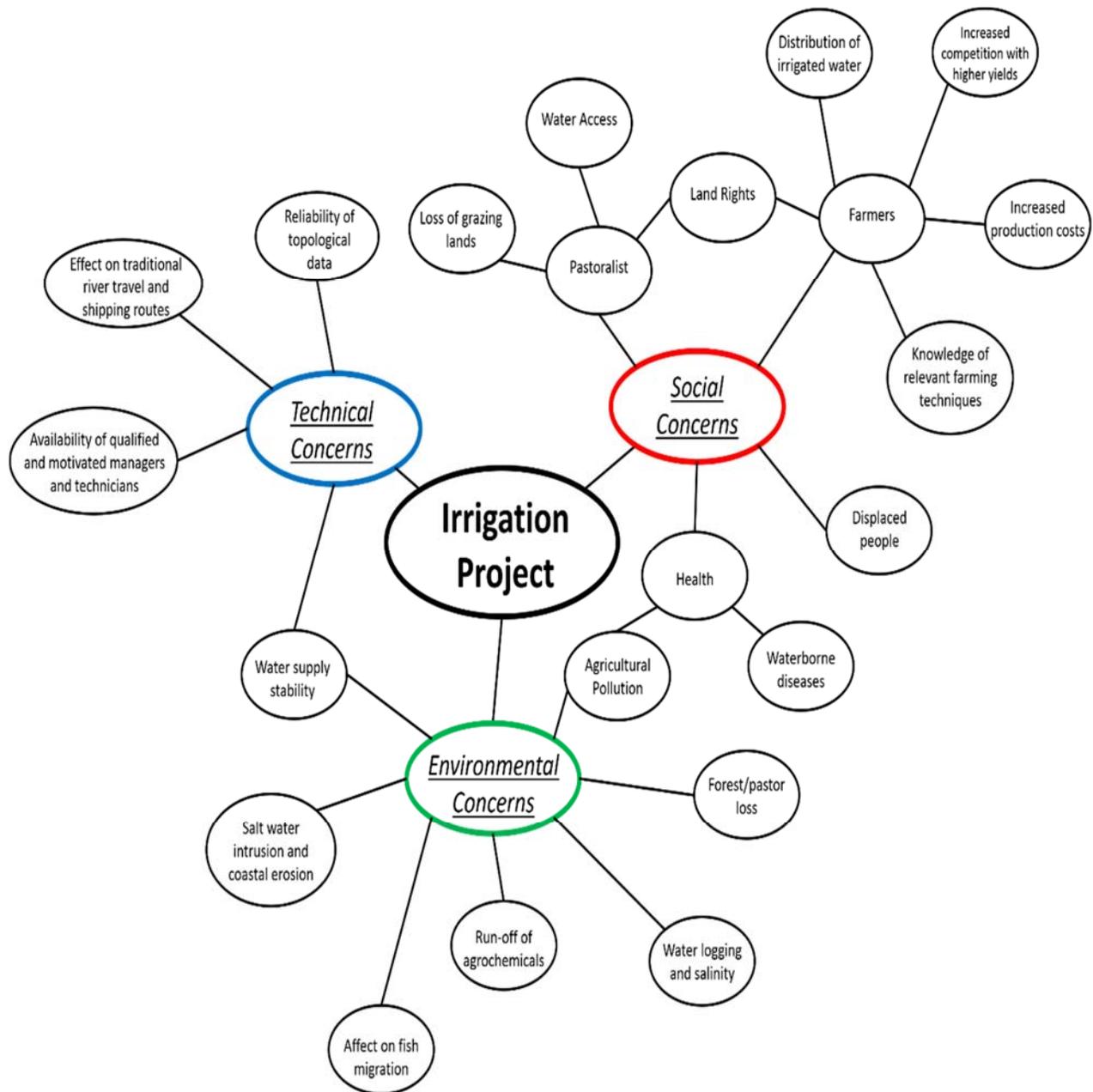


Figure 1: An illustrative concept map showing numerous factors that may be relevant to an irrigation development project, as well as how they interconnect, but is by no means comprehensive.

students need to be taught how to be self-critical engineers so they can evaluate their actions and contribute to the overall success of a project. This type of training teaches an engineer to recognize their weaknesses and identify the skills needed to build an effective, multidisciplinary team of change agents. However, this is easier said than done. Case Western Reserve University has a model known as the Seminar Approach to General Education and Scholarship as an undergraduate program that groups students of various disciplines into classes as their core English requirements, exposing students

to a variety of perspectives in many different fields. As an undergraduate requirement, however, success too often hinges more on the teaching skills of the professor rather than the structure of the class. This approach could be more effectively adapted to a graduate level as a joint program that includes disciplines such as social work, sociology, psychology, etc., in addition to engineering, with a group project assignment with a core grading requirement focusing on teamwork and dialogue. In the case of international projects in developing countries, locally trained engineers frequently will

not have the same ethics or multidisciplinary training as those from or trained in developed countries. This can be a major roadblock to the long-term success of a project, but if the local engineers can be trained as institutional organizers before becoming field technicians, it is possible to create a much more sustainable social infrastructure that can last without the support of foreign expertise.

For any project to succeed in a high-risk environment, transparency and accountability are paramount. Engineering ethics is commonly taught via the presentation of various case studies coupled with brief discussions of “what-if” scenarios, very

often in a large lecture. Unfortunately, it is far too easy for students to feign participation to get through the class. Incorporating a case study writing component can force students to be more conscious of the ethical dilemmas facing engineers in the field and instill in them the values necessary to be successful change agents. An even more effective educational model is the seminar approach, where class size is limited to between 15 and 20, with the course driven almost entirely by discussion. This method promotes a level of involvement not possible in larger lecture style classes, and encourages students to face the difficult realities of engineering ethics directly.

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The newsletter of Global Peace Services USA is published regularly. GPS USA is incorporated in the District of Columbia and is tax-exempt. Current board members are: Anna Amato, John Eriksson, Robert Muscat, Mindy Reiser, Ronald Ridker, Kelly Skeith and Sovan Tun. We welcome contributions and comments. To contact us:

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