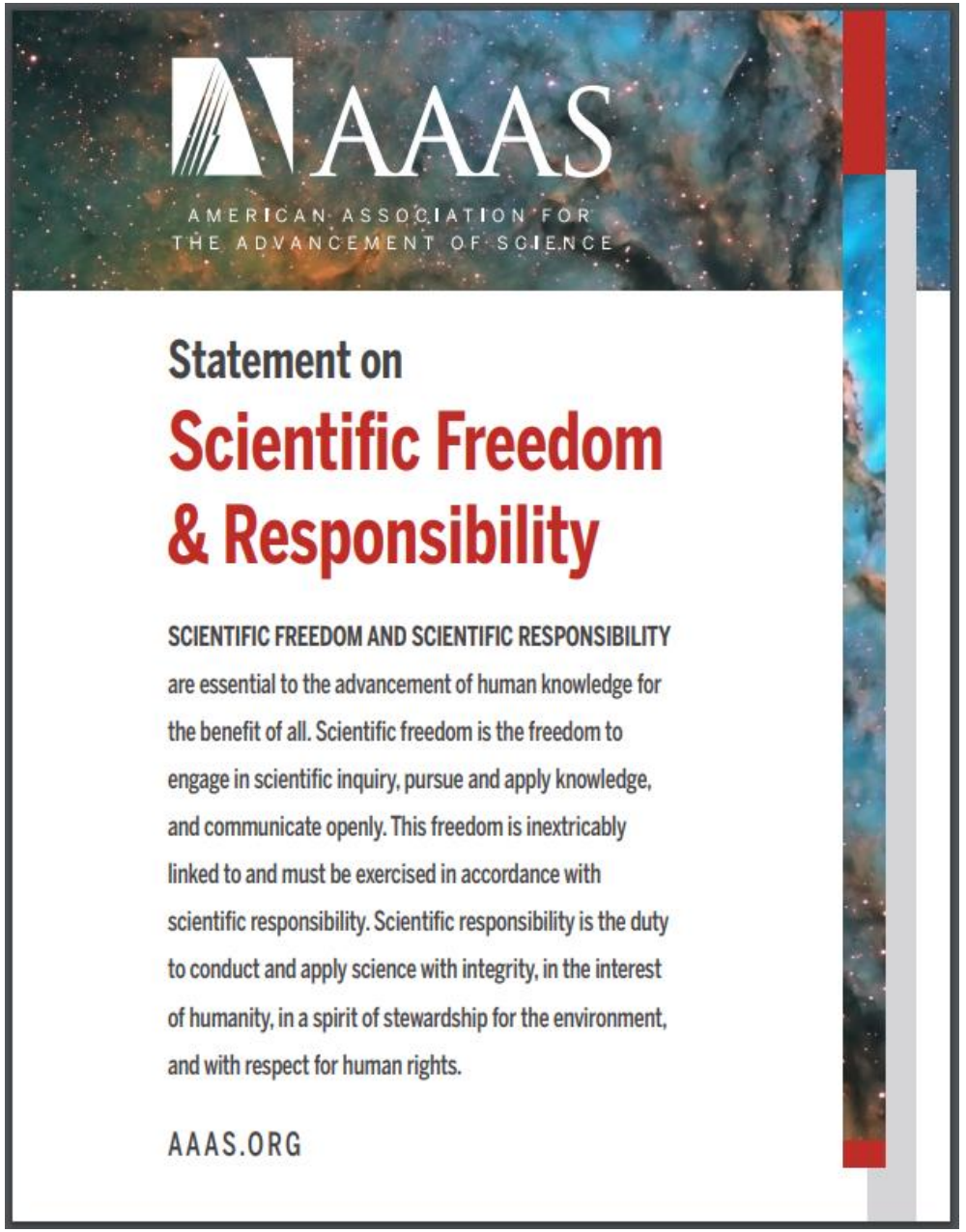
AAAS

Bridging Engineering and Human Rights

November 18, 2024

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE


AAAS
AMERICAN ASSOCIATION FOR
THE ADVANCEMENT OF SCIENCE
Statement on
Scientific Freedom
& Responsibility
SCIENTIFIC FREEDOM AND SCIENTIFIC RESPONSIBILITY are essential to the advancement of human knowledge for the benefit of all. Scientific freedom is the freedom to engage in scientific inquiry, pursue and apply knowledge, and communicate openly. This freedom is inextricably linked to and must be exercised in accordance with scientific responsibility. Scientific responsibility is the duty to conduct and apply science with integrity, in the interest of humanity, in a spirit of stewardship for the environment, and with respect for human rights.
AAAS.ORG

Article 15: International Covenant on Economic, Social and Cultural Rights

States shall:

1. recognize the right of everyone to *(b) enjoy the benefits of scientific progress and its applications*;
2. *conserve, develop and diffuse science* and culture;
3. respect the *freedom indispensable for scientific research* and creative activity; and
4. recognize the benefits of *international contacts and co-operation* in the scientific and cultural fields.

2010 AAAS Statement on the Human Rights to the Benefits of Scientific Progress

Statement of the Board of Directors of the
American Association for the Advancement of Science
On the Human Rights to the Benefits of Scientific Progress

Approved by the AAAS Board of Directors
16 April 2010

The human right to enjoy the benefits of scientific progress and its applications was first internationally recognized in the 1948 Universal Declaration of Human Rights. Basic tenets of the right include: ensuring equitable access to the benefits of scientific progress, with particular focus on vulnerable and marginalized groups; investing in R&D and creating incentives for innovation to address forms of suffering experienced by these groups; ensuring the freedom of scientists to engage in scientific inquiry while also conducting their work responsibly; and fostering international cooperation in science.

An international process is currently underway that will take into account different perspectives and diverse interests in defining with greater clarity the meaning of the right and in determining how best to implement the right in practice. Recognizing that this right lies at the heart of the AAAS mission and the social responsibilities of scientists, AAAS will pursue opportunities to collaborate with the global scientific community so that the voice, interests and concerns of scientists can be brought to this process.

Building on AAAS's strength as the world's largest multi-disciplinary scientific society and its unique contributions in bringing science and scientists to human rights work, AAAS will:

- bring to the attention of its affiliates and members the importance of engaging in discussions concerning the human right to benefit from scientific progress and its applications;
- engage the domestic and global scientific communities in defining the content of the right and determining its application to a diverse range of scientific disciplines and issues of concern to the scientific community;
- coordinate the efforts of the AAAS Science and Human Rights Coalition to conceptualize the right and pursue strategies for integrating this right into the work of Coalition members; and
- building on these activities, engage the US government and other key actors in dialogue on the right to benefit from science and its implications for relevant policies and programs.

AAAS
ADVANCING SCIENCE, SERVING SOCIETY

- Equitable access to the benefits of scientific progress;
- Investing in R&D and creating incentives for innovation;
- Protecting freedom to engage in responsible scientific inquiry; and
- Fostering international cooperation in science and technology.


AMERICAN PSYCHOLOGICAL ASSOCIATION
About APA
Psychology Topics
Publications
Psychology Help Center
News & Events
Human Rights Day
December 10, 2012
Worldwide
ACS
Chemistry for Life
Global Community
ACS Human Rights Webinars
Coffee for Justice – Chemistry in Service to Small-holder Coffee Producers in Latin America
CUR Quarterly
COUNCIL ON UNDERGRADUATE RESEARCH
Spring 2014 | Volume 34, Number 3
HUMAN RIGHTS AND UNDERGRADUATE RESEARCH
AERA
AMERICAN EDUCATIONAL RESEARCH ASSOCIATION
American Educational Research Association Statement on Human Rights
Approved by AERA Council, April 27, 2013
Background:
AAG
AMERICAN ASSOCIATION of GEOGRAPHERS
AAG Annual Meeting
AAG 2017 Featured Theme
Mainstreaming Human Rights in Geography and the AAG
AAG Annual Meeting, Boston, April 5-9, 2017
Keynote Address
SENCER
SCIENCE EDUCATION FOR NEW CIVIC ENGAGEMENTS AND RESPONSIBILITIES
Science and Human Rights: Making the Connection
Society for Research in Child Development
Equity and Justice
ASA footnotes
A Publication of the American Sociological Association
March-April 2016 Issue • Volume 44 • Issue 3
Human Rights and the Scholarly Society: What Is ASA's Role?
Crisis in Turkey
The Larger Context

Exchanges Between Human Rights Practitioners and Engineers

Tyler R. Giannini
Human Rights Entrepreneurs Clinic, Harvard Law School

November 18, 2024

Issues at the Intersection of Engineering and Human Rights Symposium
at the National Academies

Guiding Questions

1. What can the human rights framework bring to the table for engineers?
2. What gaps can engineers fill to help human rights practitioners?
3. What spaces exemplify places for exchange and experimentation?

The Value of Human Rights

- Moral and Ethical Language and Underpinnings
- Legal Claims and Frameworks
- A Web of International and National Institutions

An Ever-evolving Space

- UN Guiding Principles on Business and Human Rights
- The Right to a Clean and Healthy Environment

The Power of Combining Disciplines

Operationalizing Human Rights

The Fourth Pillar
https://fourthpillarinitiative.org/

Centering Communities
in
Business & Human Rights

Solving Practical Problems

The Right to Cooling

Bridging Engineering and Human Rights

Maya E. Carrasquillo, PhD

Civil and Environmental Engineering, University of California- Berkeley

Issues at the Intersection of Engineering and Human Rights

November 18, 2024

LIBERATORY INFRASTRUCTURES LAB

Berkeley UNIVERSITY OF CALIFORNIA

What is engineering?

- Engineering is “The systematic **application of scientific knowledge** in developing and applying technology.”
- “Engineering involves the **knowledge** of the mathematical and natural sciences (biological and physical) gained by study, experience, and practice **that are applied** with judgment and creativity to develop ways to utilize the materials and forces of nature **for the benefit of mankind**.”
- “Engineering is a systematic and often iterative **approach to designing objects, processes, and systems to meet human needs and wants**.”
- Engineering is the **act of creating** artifacts, processes, or **systems that advance technology and address human needs** using principles of the sciences, mathematics, computing, and operations.

https://www.nae.edu/221278/Presidents-Perspective-What-Is-Engineering

How do we bridge engineering & human rights?

Human Needs + Human Rights + Application

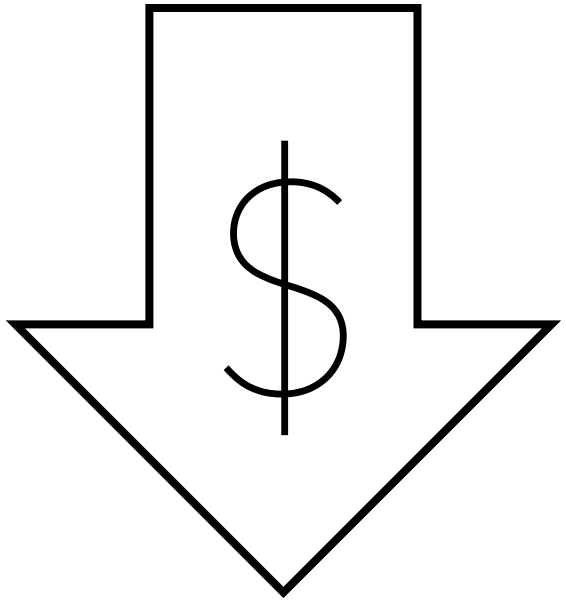
= <u>Engineering for a Human Standard</u>

Why a human rights framing for engineers?

Human rights extends the motivation for engineers beyond ethics, morality, legality and citizenry to application based on humanity.

A human rights framing becomes the starting point through which additional measures of accountability and standardization in practice can be enforced in how we conduct the engineering profession.

“Engineering for a human standard”



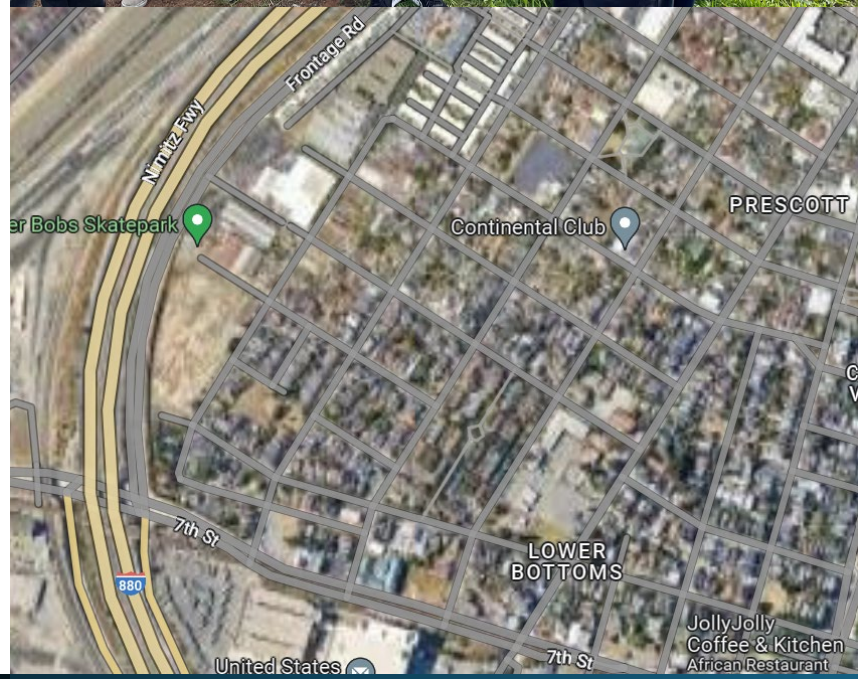
Low-income/racially marginalized communities

People experiencing houselessness

People who are incarcerated

Engineering and Reimagining Just Futures: Prescott Resilience Hub & Community-based Engineering

- Partnered with Neighborship with the goal of evaluating how we can build resilience for housed and unhoused neighbors in the Prescott neighborhood of West Oakland.
- Student teams consulted on projects related to food, energy, drinking water, wastewater, stormwater, housing, transportation, emergency preparedness, etc.
- Current research focusing on this partnership and further exploring support services for unhoused communities in the Bay Area.



Closing Thoughts

- Engineering can help become the “glue” upon which we inform the practical applications of human rights to address basic needs for a human standard of living.
- Bridging engineering and human rights can continue to build upon the ethical and justice framings that challenge us to think about the complexity (and opportunities) of operationalizing human rights into engineering standards.

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ENGINEERING FOR HUMAN RIGHTS

Shareen Hertel, Ph.D.
University of Connecticut
Remarks for NASEM
November 18, 2024

Engineering for Human Rights
LEGAL FRAMEWORK

- HR = a claim by someone, on someone, for something essential to human dignity
- Rights and duties are correlated
- HR law binds STATES, which set LAWS that bind PEOPLE and other ENTITIES to act in ways that respect human dignity
- Global, regional, national, local impacts

Engineering for Human Rights COMPREHENSIVE APPROACH

- Integrates multiple types of rights:
- Civil and political human rights
- (e.g., protections from harm – see parallels with chain of custody management)
- Economic, social and cultural human rights
- (e.g., access to rights instrumental to wellbeing – see parallels with inclusive design, creative patent design, community benefits assessment)

PRACTICAL IMPLICATIONS

- Addresses the ethical implications of engineering, using universal norms and standards
- Covers the social and environmental impact of activity in the field
- Linked to safety and wellbeing of employees, customers, and other stakeholders
- Linked to related legal requirements (e.g., due diligence laws for supply chain management) and voluntary standards (e.g., industry codes of conduct)
- Linked to reputational factors (e.g., negative publicity AND positive positioning) at the firm- or unit-level
- Linked to concrete carry-on effects of engineering (e.g., reduced turnover, increased productivity, increased policy coherence, creative synergies)

CONCEPTUAL FRAMEWORK: Principles of ENGR for HR

Chacon-Hurtado, D., Kazerounian, K., Hertel, S., Mellor, J., Barry, J. J., & Ravindran, T. (2024). Engineering for Human Rights: The Theory and Practice of a Human Rights–based Approach to Engineering. Science, Technology, & Human Values, 49(4), 898-934. https://doi.org/10.1177/01622439231211112

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TIMING of ENGR for HR

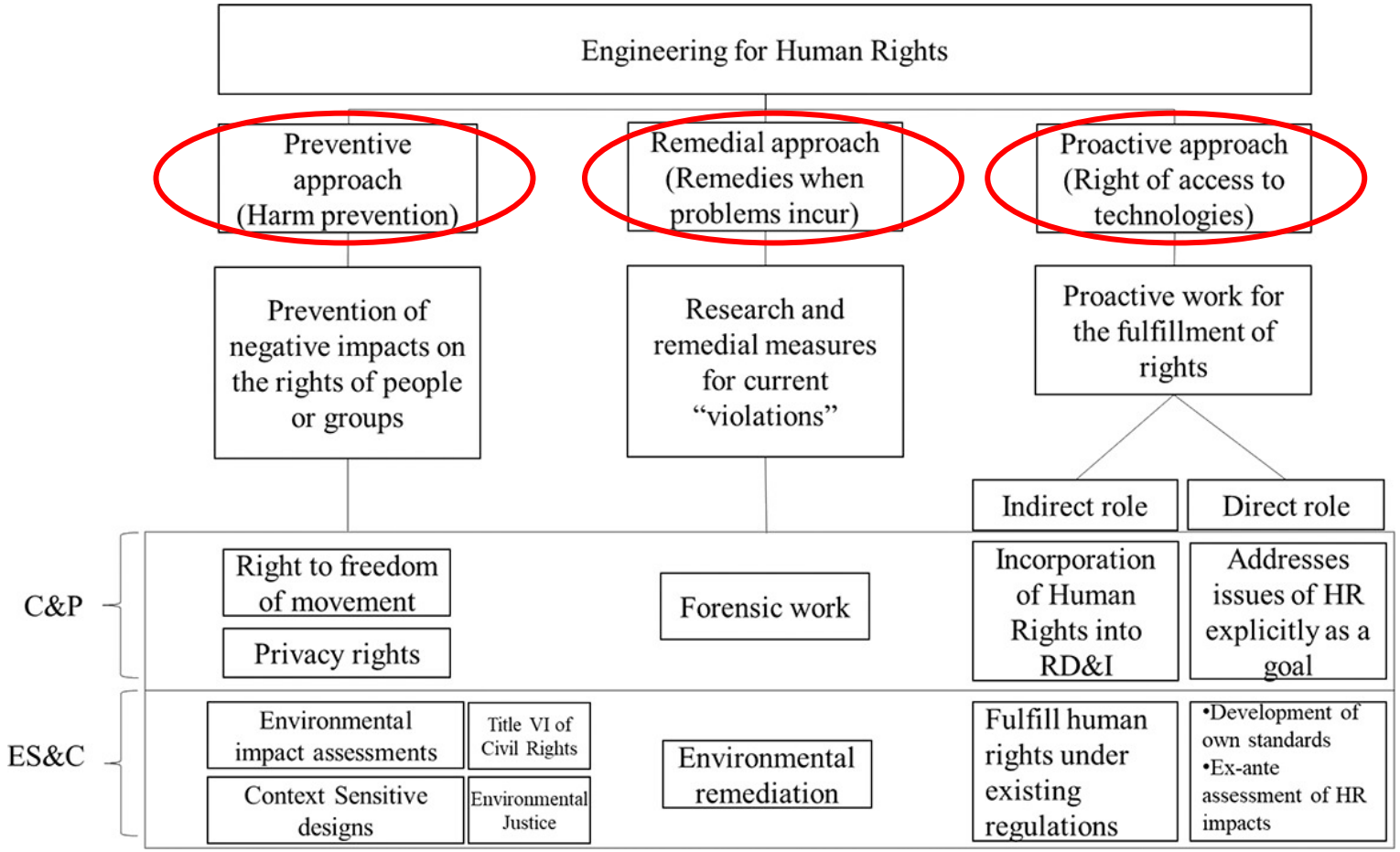

Figure 1. A proposed framework of Engineering for Human Rights. Right to freedom of movement refers to the right to liberty of movement and freedom to choose his residence (UDHR 1948, Article 13). For example, an engineering construction project cannot force migrant workers to stay in the country against their will. Privacy rights refers to Article 12: "no one shall be subjected to arbitrary interference with his privacy, family, home or correspondence" (UDHR 1948). C&P: civil and political rights; ES&C: economic, social, and cultural rights; RD&I: research, development, and implementation of projects and technologies; and HR: human rights.

Chacon-Hurtado et al. (2024). https://doi.org/10.1177/01622439231211112

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