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Palo Alto University Rotary Club – Environmental Impact Committee

Outline and Syllabus

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This paper has two purposes: (1) to provide some context (e.g., an "outline" or "map") to break down the huge array of concerns, topics, and issues of interest to the Environmental Impact Committee (EIC) into discrete parts, and (2) to provide a starting list of some key resources for those wanting more background information (e.g., a "syllabus")[1].

I have organized the paper into twelve general topics, with books, links, and other materials listed under each. Also included [to be provided later] are links to shorter pieces summarizing key points (e.g., TED talks, articles, websites, etc.).

Philosophy and Fundamental Principles

- Interconnections: A fundamental principle in considering virtually any environmental topic is to understand relevant connections. As John Muir said, "When we try to pick out anything by itself, we find it hitched to everything else in the universe." (John Muir, *My First Summer in the Sierra* (1911)).

- Respect: Another principle is respecting the value of nature for its own sake, not just from the perspective of how it provides goods and "ecosystem services" for humans. This idea has been described by a number of publications; some appear as part of what's called the "deep ecology movement." For more background, see *The Deep Ecology Movement: An Introductory Anthology*, by Alan Drengson and Yuichi Inoue (editors)(1995).

- Another group of writers have explored how to structure a new approach to creating wealth through encouraging environmental responsibility by global businesses. See, e.g., *Natural Capitalism: Creating the Next Industrial Revolution*, by Paul Hawken, Amory Lovins, and L. Hunter Lovins (1999).

- Many books have also been written expressing the spiritual aspects of the natural environment and the value of wilderness. See, e.g., *Desert Solitaire: A Season in the Wilderness*, by Edward Abbey (1968), writing about his work as a park ranger in Southeast Utah.

- Increasing Understanding: Another principle emphasizes the importance of continuing understanding through both science and careful observation by people who know their own land and who study its underlying processes. Among many such books are the classic, *The Sea Around Us*, by Rachel Carson (1961) and the essays and stories of Wendell Berry, of which *The Memory of Old Jack* (1974) is an example.

- Diversity: A third is the value of diversity in nature, which provides resilience and is a result of the process of natural evolution that created the huge varieties of life through adaptation and constant interactions. The work of Edward O. Wilson, a highly acclaimed biologist and naturalist, is a good example. His recent book, *Half Earth: Our Planet's Fight for Life* (2016), describes the devastating effects of species extinction.

- Ethics: A fifth basic fundamental is that the natural environment provides essential grounding for life on Earth and that human societies have a responsibility to care for the health of the natural world. To help in putting these principles into practice, an environmental ethics developed during the last century. For background on how this developed, see, e.g., *A Sand County Almanac*, by Aldo Leopold (1966).

- Recent books have suggested that a fundamental philosophical shift is needed to maintain the necessary balance between natural systems and Earth's carrying capacity and human economic and social systems. See, e.g., *The End of Nature,* by Bill McKibben (1989).

- The environment has consequently been the subject of artists, poets, musicians, spiritual leaders, etc. in an effort to emphasize the importance of these relationships. (Insert a citation to the "Voices of the Earth Program," presented at Stanford this past summer; include a pdf of the Program Texts).

Climate Change

- The dynamics and physics of climate change have long been known, but the climate crisis has become an increasingly urgent issue. Al Gore began to focus attention on it in 2007 and numerous others have done so more recently. See, e.g., *Storms of My Grandchildren: The Truth about the Coming Climate Catastrophe and Our Last Chance to Save Humanity*, by James E. Hansen (2009); *Our Choice: A Plan to Solve the Climate Crisis,* by Al Gore (2009); and *The Hockey Stick and the Climate Wars*, by Michael E. Mann (2012).

- One great concern is how to set priorities when the problem is so sweeping and complex. An important source of ideas and reasoning is contained in *Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming*, edited by Paul Hawken (2017).

Economics and Sustainability

- Human civilizations evolved with varying levels of concern about environmental issues, but the impact of human activities was often an afterthought. (See *Plan B 4.0: Mobilizing to Save Civilization*, by Lester Brown (2009).

- In recent years, economists and others have begun to emphasize "natural capital," "circular" rather than linear thinking, and the importance of understanding systems. A recent book that covers these topics is: *Doughnut Economics: 7 Ways to Think Like a 21st Century Economist*, by Kate Raworth (2017).

- For understandable metaphors and metrics for measuring individual and national carbon footprints, and explaining that current practices are "overshooting" the Earth's capacity for regeneration and restoration of environmental systems, see the Global Footprint Network (https://www.footprintnetwork.org/).

Energy and Transportation

- The industrial age of energy and transportation has been dominant for more than a hundred years. It is now fundamentally challenged by the need for de-carbonizing our economy and may be ending or transforming.

- A book making the case for rapid change is *Clean Disruption of Energy and Transportation: How Silicon Valley Will Make Oil, Nuclear, Natural Gas, Coal, Electric Utilities and Conventional Cars Obsolete by 2030*, by Tony Seba (2014).

- Our club member, Elton Sherwin, wrote about energy and transportation and the need for conservation in his book: Elton B. Sherwin, Jr., *Addicted to Energy: A Venture Capitalist's Perspective on How to Save Our Economy and Our Climate* (2010). It is full of specific, practical steps that individuals, businesses, and governments can take to lower their energy consumption.

Species Diversity

- The rapid extinction of species is a less understood, but just as urgent, crisis as climate change. While it lacks the dramatic effects of rising sea levels and the increasingly destructive storms, floods, and wildfires, this "quieter" crisis represents the loss of resilience for life on the planet and decreasing capacity to cope with the uncertainties of the future.

- A comprehensive overview is presented in Elizabeth Kolbert's book, *The Sixth Extinction: An Unnatural History* (2014).

Population

- Researchers such as Paul Ehrlich and many others have long warned about the increasing pressures of exponential population growth on Earth's resources and carrying capacity. Ehrlich's book, *The Population Bomb* (1968) warned of worldwide famine, global upheavals, and many other dangers from "explosive population growth."

- Since then, there has been a robust scientific and policy debate about whether the warnings were overblown, or whether the basic thesis was correct. Paul and Anne Ehrlich have responded to their critics in a number of publications, of which one is particularly useful: an article in the Electronic Journal of Sustainable Development, entitled "The Population Bomb Revisited" (2009).

- The topic is fraught with political battles about family planning, technology, abortion, etc. Here is a recent update on the importance of family planning and what results have been achieved by programs to encourage it: https://www.ncbi.nlm.nih.gov/books/NBK215219/

Environmental Justice

- Locating polluting facilities in affluent areas has often been successfully resisted, which tends to push them to minority neighborhoods and locations with less political power.

- There are many books and articles on this topic. A particularly useful overview is provided in *Climate Justice: Hope, Resilience, and the Fight for a Sustainable Future*, by Mary Robinson (2018).

Food Production

- It has become increasingly widely recognized that food production, particularly beef, has a huge carbon footprint. See e.g., *In Defense of Food: An Eater's Manifesto*, by Michael Pollan (2008).

- There are many resources for information about the impacts of food production on the environment. The World Economic Forum published links to five videos on this topic in connection with Davos

2016. Here is the link: https://www.weforum.org/agenda/2016/01/5-videos-that-reveal-the-human-impact-on-earth/

Air Quality

- Nothing is as elemental to human life as the air we breathe. Yet, around the world air quality has been deteriorating as countries develop. The United States has dealt with these complicated problems through legislation such as the Clean Air Act and numerous regulations, with notable success.

- An overview of the problems, history, and prospects for the future around the world are presented in *Choked: Life and Breath in the Age of Air Pollution*, by Beth Gardiner (2019).

Water – Quality and Quantity

- Many books have been written about the importance of water sources to serve growth and development. A particularly interesting account of the efforts by Los Angeles to secure water supply is provided in the classic book, *Cadillac Desert: The American West and Its Disappearing Water*, by Marc Reisner (1986).

Land Use – Forests, Farmland, Sprawl Development, Parks and Open Space

- There are a wide range of books and other resources about these topics. One particularly useful book about the Mississippi watershed is *Rancher, Farmer, Fisherman: Conservation Heroes of the American Heartland*, by Miriam Horn (2016), which has been made into a documentary movie on the Discovery Channel.

Pollution and Toxic Substances

- There are many books for specialized readers about the history of legislation and regulation to lessen the dangers to the public of pollution, particularly of dangerous and toxic substances. Many are too technical to be of interest to lay readers; others are polemical and seem too one-sided to be trusted. Plus, this is a complex area to cover for lay readers.

- One well reviewed book about the regulation of dangerous substances by the Environmental Protection Agency is: E.G. Vallianatos, *Poison Spring: The Secret History of Pollution and the EPA* (2014). It was written by a team of environmental writers (one of whom was a former EPA employee).

[1] While this paper reflects my long experience with environmental issues, it is not definitive, nor is it intended as anything more than a "first draft" to assist club members in presenting a structure to understand the vast "terrain" of environmental issues, organizations, and resources. My expectation is to encourage others to contribute to this effort, collectively contributing to EIC's effectiveness.