

## What to do about carbon & climate – Toward a daily multi-scale sustainability practice

### 1. Articulate a global goal.

State an operational goal at the global scale, expressed in quantitative language.

Examples:

- a. Interim goal: Globally, *stabilize the concentration* of CO<sub>2</sub> (and other greenhouse gases) in the atmosphere by a certain year. This would mean we would bring **sources to the level of sinks**.<sup>1</sup>
- b. Long term goal = Globally, *reduce GHG concentrations* in the atmosphere, by reducing emission to zero and increasing global sinks.<sup>2</sup>

### 2. Articulate general, global categories of available strategies.

- a. Two overarching strategies at global scale – reducing sources and increasing sinks.
- b. Four factors that drive emissions – Kaya equation. These can be targeted as strategies.
  - i. Carbon intensity of energy sources (CO<sub>2</sub>/energy yield)
  - ii. Energy intensity of economy (Energy/GDP)
  - iii. Consumption (GDP/person)
  - iv. Population

### 3. Articulate national goals.

- a. Considering needs of developing countries (environmental justice) and other sustainability considerations (eg biodiversity), articulate goals at the national level.<sup>3</sup> For example:
  - i. “In the US we will cut our emissions by 65% by 2035.”<sup>4</sup>
  - ii. “In the US we will maintain or increase our land sink by 2050.”
  - iii. “In the US we will commit \$ for foreign aid to developing countries.”

### 4. Translate goals into specific national actions.<sup>5</sup>

Examples:

- a. Renewable energy: Incentivize wind, solar, and other renewable energy sources.
- b. Transportation: Incentivize public transport, biking, walking, and electric vehicles.
- c. Heating/cooling: Incentivize switch to electric heat pumps, improved building design.
- d. Enhance sinks: Incentivize agriculture and forestry practices that maintain or increase carbon sinks.

### 5. Engage in actions at personal and community level.

- a. Support political initiatives and policies aligned with goals and actions articulated above.
- b. The “Seven R’s + one” of consumer choice<sup>6</sup>
- c. Enroll in community renewable energy programs and local food cooperatives.
- d. Transition to “electrify everything” in our homes and vehicles.
- e. Walking, biking, car-pools, public transport. Travel closer to home, by land when possible.
- f. Nurture low-energy/low consumption activities – focal practices, focal things<sup>7</sup>
- g. Join local groups providing aid to communities and nations in need.

### 6. Stay positive.

- a. Remember the good news
  - i. In developed countries, populations are mostly stable or decreasing; globally population is increasing, but population *growth rates* are decreasing.
  - ii. Global emissions, though still increasing, appear to be increasing more slowly.
  - iii. Emissions in the US have been steadily decreasing.
  - iv. Renewable energy technology is becoming cost-competitive.

### Afterword: The larger context of sustainability

Common sustainability frameworks generally define several broad dimensions of sustainability and enumerate multiple goals.<sup>8</sup> From this perspective, a focus on carbon and climate runs the risk of overlooking a fuller picture of sustainability. Even within the dimension of environmental sustainability, other goals and values include sustainable management of natural resources, protecting biodiversity at multiple scales, and cultivating our relations of kinship, respect, reverence, and gratitude for the communities of life on earth.<sup>9</sup>

### Further Reading

Borgmann, A. (1984). *Technology and the Character of Contemporary Life*. University of Chicago Press.

C-ROADS Climate Change Policy Simulator: <https://www.climateinteractive.org/c-roads/>

Chakravarty, S., et al. (2009). Sharing global CO<sub>2</sub> emission reductions among one billion high emitters. *Proceedings of the National Academy of Sciences*, 106(29), 11884-11888.

Earth Charter (2000). Available online: <https://earthcharter.org/read-the-earth-charter>

Global Carbon Budget: <https://www.globalcarbonproject.org/carbonbudget/>

Harte, John and Mary Ellen. *Cool the Earth, Save the Economy: Solving the Climate Crisis is EASY*. Available online: <http://www.cooltheearth.us/>

Hawken, P. (2017). *Drawdown: The most comprehensive plan ever proposed to reverse global warming*, Penguin. Project Drawdown website: <https://drawdown.org/>

Household emissions in the US: <https://theconversation.com/5-charts-show-how-your-household-drives-up-global-greenhouse-gas-emissions-119968>

International Energy Association (latest emissions data): <https://www.iea.org/>

Kaya Model: <https://climatemodels.uchicago.edu/kaya/kaya.html>

Keeling, Eric “The Seven R’s Plus One”. <https://earthrisecommons.org/people/eric-keeling>

MacKay, D. J. C. (2016). *Sustainable Energy-without the hot air*, Bloomsbury Publishing. Available online: <https://www.withouthotair.com/>

Running, Steve (2007). Five Stages of Climate Grief. *Numerical Terradynamic Simulation Group*, 173. Available online: [https://scholarworks.umd.edu/ntsg\\_pubs/173/](https://scholarworks.umd.edu/ntsg_pubs/173/)

Scripps CO<sub>2</sub> Project (for latest CO<sub>2</sub> data): <https://scrippsco2.ucsd.edu/>

Socolow, R. H. and S. W. Pacala (2006). “A plan to keep carbon in check.” *Scientific American* **295**(3): 50-57. Stabilization Wedges website: <https://cmi.princeton.edu/resources/stabilization-wedges/>

United Nations Nationally Determined Contributions (NDC) Registry: <https://unfccc.int/NDCREG>

United Nations Sustainable Development Goals: <https://sdgs.un.org/goals>

### Notes

<sup>1</sup> Sinks are predicted to weaken over time if emissions are reduced and warming is happening. Wedges goals in 2006 were to stabilize *emissions* (not *concentrations*) by 2056, then bring emissions down toward the point where *concentrations* stabilize by 2106. Project Drawdown goals are to reduce emissions immediately and increase sinks such that concentrations are decreasing by 2045 or 2065, depending on how aggressively actions are taken.

<sup>2</sup> Alternative language (eg IPCC goals) is to limit global temperature increase. Eg to 1.5 or 2.0 degrees C.

<sup>3</sup> See: <https://unfccc.int/NDCREG> for “Nationally Determined Contributions” (NDC’s) through Paris Agreement.

<sup>4</sup> US pledge is 61-66% reduction from 2005 levels by 2035. See: *United States NDC December 19, 2024*.

<sup>5</sup> Implemented through national policies driven by political action. Could also include tax policy – price on carbon, revenue-neutral taxes, etc. For more on the solutions themselves, see resources such as Wedges, Drawdown, McKay’s book, etc.

<sup>6</sup> See Keeling “The Seven R’s plus one”. <https://earthrisecommons.org/people/eric-keeling>

<sup>7</sup> See Borgmann, A. (1984). *Technology and the Character of Contemporary Life*. University of Chicago Press.

<sup>8</sup> Many models define three dimensions: social, economic, environmental.

<sup>9</sup> See Earth Charter (2000): “Everyone shares responsibility for the present and future well-being of the human family and the larger living world. The spirit of human solidarity and kinship with all life is strengthened when we live with reverence for the mystery of being, gratitude for the gift of life, and humility regarding the human place in nature.” (Earth Charter, pg 1).