Leverage Points for the Sustainable Transformation

TN Climate Action Campaign
Leverage points are places within a complex system where a small shift of one thing can produce big changes in everything.
This presentation reviews the twelve leverage points of change described in Donella Meadows book, *Thinking in Systems*, published in 2008 posthumously. She also was the lead author of the 1972 book, *The Limits of Growth*. 
Changing Numbers

Ineffective Leverage Points
Changing the System’s Physical Parts

Making minor adjustments to rates and standards consume 95% of everyone’s attention, but they rarely change the system or the people they attempt to influence.

Examples of Ineffective Numbers Changing
Raising the minimum wage has not reduced poverty.
Caps on campaign spending does not cleanup politics.
How much money is spent on remediation does not affect the overall degradation

Changing numbers rarely changes behaviors or systems.
Infrastructure Change

Some physical infrastructures – such as our transportation network - are simply built wrong. The only way to fix it is to rebuild it, but this leverage point is the slowest and most expensive kind of change to make in a system.
Negative Feedback Loops

Negative feedback loops are self-correcting and keep important systems within bounds. A thermostat is a negative feedback loop. Species diversity is a natural feedback system. Stripping away natural habitat has reduced the functioning of ecosystems.

Examples of strengthening negative feedback controls to improve a system's self-correcting abilities: preventive medicine, exercise, integrated pest management to encourage natural predators of crop pests, the Freedom of Information Act to reduce government secrecy, protection for whistle blowers, impact fees, pollution taxes, and performance bonds to recapture the externalized public costs of private benefits.
Positive feedback loops are self-reinforcing. The more it works, the more it gains power to work some more. Positive feedback loops drive growth, explosion, erosion, and collapse in systems. A system with an unchecked positive loop ultimately will destroy itself. That's why there are so few of them.

Reducing the gain around a positive loop – slowing the growth – is a powerful leverage point in systems. Slower population and economic growth rates are leverage points because slowing them gives the system a chance to catch up to itself.

The TN Climate Action Campaign’s goal to have TVA set a 1% annual energy efficiency target is a positive feedback loop that will reduce energy consumption and carbon.
Information Flows

More Effective Leverage Points
Changing the System’s Information and Control Parts

A high leverage point is adding a new loop that delivers information to a place it was not going before and causing people to behave differently. Missing feedback is one of the most common causes of system malfunctions.

Requiring accountability is an example of this leverage point. People like to avoid responsibility for their behavior. This kind of leverage point is popular with the public, unpopular with the powers that be, and very effective.

Examples
• Giving people real time information on energy consumption.
• TCV Legislative scorecard
• Requiring industry to report emissions
Changing the Rules of the System

Rules of the system define its scope and boundaries. Thou shalt not kill. Every American can exercise their civil liberties.

Power over rules is real power. Lobbyists, Congress, and the Supreme Court justices are powerful. Pay attention to the rules and who have power over them. Change the rules and you will change the system.
The goal of a corporation or a cancer cell is to control everything. The goal of an ecosystem is to keep populations in balance by frustrating the goal of each population to reproduce without limit and control all the resources.

Technology is neither good nor bad. Its moral implications depend upon the goal of those wielding it.

At this level of leverage, change the players at the top of the hierarchy if a single individual can change the system goals. However, new leaders rarely can transform institutions and governments. Yet we can work to put into leadership those individuals who can transform the goals of any organization to those of sustainability.
Paradigm Shifts

The deep set of beliefs about how the world works constitutes a society’s paradigm. Money measures something real. Growth is good. Nature is there for us to exploit. Humans are the most highly evolved. One can “own” land. These and other European ideas are not universally shared by other cultures.

Paradigms give rise to systems and all its goals, flows, feedbacks, and everything else. To change a paradigm, you keep pointing at the difficulties and failures of the old one. You keep speaking louder and with assurance from the new one. You insert people with the new paradigm in places of public visibility and power. You model the new paradigm.

Don’t waste your time with reactionaries, but work with active change agents and with the vast middle ground of people who are open-minded and who experience the failures of the old.
The higher the leverage point, the more the system will resist change.

Don’t confuse your understanding of how the world works (or should work) with the world itself.

Remain open to new information even when it doesn’t fit your beliefs about the world.

Be in the Now. Live your vision. Be the change.