



EcoTipping Points: Strategies for Shifting from Decline to Restoration

The EcoTipping Points Project has documented more than 100 stories of environmental recovery in communities around the world. What do these success stories have in common?

by Gerald Marten

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Children at Apo Island enjoy a secure future that their community has achieved by returning the island's coral reef ecosystem and fishery to sustainability.

Photo courtesy of EcoTipping Points Project.

Most environmental stories we hear are tales of decline. In complexly interwoven natural systems, one ecological problem, such as loss of a forest, often leads to many others. It becomes hard to imagine stopping the downward spiral, much less reversing it.

But it can be done.

Several years ago journalist Amanda Suutari and I began collecting environmental success stories from around the world: stories in which ecological decline was turned around, and a new course was set toward restoration and sustainability. We wanted to find out what it takes to achieve such a turnabout.

The EcoTipping Points website features over 100 success stories, all of them with strikingly similar scripts. In every story, human well-being goes hand in hand with the health of the local ecosystem. And in every story, decline is driven by mutually reinforcing vicious cycles. Reversing the cycles can be a tall order, but anything less is like swimming helplessly against a powerful current.

The right “levers” transform vicious cycles into “virtuous cycles” that contribute to restoration with as much force as the vicious cycles drove decline.

Most important, in every story the sweeping changes from decline to restoration can be traced back to a “lever”—an action that set the positive change in motion. I call that lever an “EcoTipping Point.” EcoTipping Point levers typically combine the “right” eco-technology (in the broadest sense of “technology”) with the human social organization to put that eco-technology effectively into use. The levers are catalytic, generating a cascade of far-reaching effects, but they do more than that. They transform the vicious cycles into “virtuous cycles,” which contribute to restoration with as much force as the vicious cycles drove decline. (Click here for detailed examples of transforming vicious cycles into virtuous cycles.)

Success Stories

The following success stories illustrate the diversity of forms that EcoTipping Points can take. In every case, success began at one location and subsequently spread to many.

- **A marine sanctuary at Apo Island in the Philippines** set in motion community fisheries management that reversed a vicious cycle of destructive fishing and depletion of fish stocks, restored the island’s coral-reef ecosystem and fishery, rescued a fishing village’s valued way of life, and created new avenues of prosperity. Seven hundred fishing villages in the Philippines now have marine sanctuaries.
- **Agroforestry and community forest management in Nakhon Sawan (Thailand)** reversed a vicious cycle of deforestation, watershed degradation, dependence on expensive agricultural inputs, debt, population exodus, and carbon dioxide release due to deforestation. (Tropical deforestation is responsible for 30 percent of global carbon dioxide emissions.) The region’s villages restored local forests and the ecological health of their watersheds, secured their livelihoods with agriculture that was sustainable because it mimicked forests, and helped to reduce global greenhouse gases by returning atmospheric carbon to a once-again verdant landscape.



Community gardens in New York City provide fresh vegetables, attractive community space, neighborhood pride, and respite from the hectic pace of city life.

Photo Courtesy of EcoTipping Points Project.

New York City's "Green Guerillas" created community gardens in vacant lots, reversing a vicious cycle of urban decay, crime, neglect, and population flight, while producing food, flowers, community space, and wildlife habitat to nourish the bodies and souls of 800 neighborhoods, stimulating local residents to renovate their neighborhoods and inspiring urban community gardening across the nation.

- **"Envision Utah" involved thousands of citizens in map-based, regional planning workshops**, creating an informed public opinion that reversed urban sprawl in the Salt Lake City metropolitan area, preserving agricultural land, transforming transportation corridors with light rail, and setting the 98 municipalities in the region on a course of healthier urban growth.
- **Cotton farmers in Andhra Pradesh (India) used "Non-Pesticide Management"** with neem and other ecological methods to reverse a vicious cycle of pesticide resistance in insect pests, heavier use of chemical pesticides, human pesticide poisoning, debt, and the highest suicide rate in India. They restored human health, family budgets, and local wildlife (including birds and predatory insects that provided natural pest control) and were inspired by their success to embark on new improvements for their villages. Non-Pesticide Management has now spread to more than 3,000 villages.
- **Community coastal mangrove management in Trang Province (Thailand)** reversed a vicious cycle of mangrove destruction, fisheries depletion, and the forcing of local inhabitants into increasingly destructive activities as resources deteriorated. It restored mangrove habitat, coral reefs, coastal fisheries, and economic opportunities while inspiring more than 50 villages to improve the ecological health of their entire watersheds.
- **Arcata (California) created a coastal wetland** at the former site of the city's dump and derelict millpond, providing low-cost municipal sewage processing along with wildlife habitat and nature recreation in an urban setting. Expansion of constructed wetlands to surrounding towns changed urban development in a way that helped to contain urban sprawl.
- **Indigenous communities in the Mixtec region of southern Mexico planted millions of trees**, reversing a centuries-long vicious cycle of deforestation, overgrazing, and desertification, setting a barren landscape on a course of restoration, and inspiring the communities to take greater charge of their destinies.
- **Freiburg, Germany is an inspirational "green city,"** which overcame a vicious cycle of ever-increasing consumption and dependence on fossil fuels, switching to a course of sustainable transportation, energy, waste management, and land conservation while creating a far-reaching green economy that perpetuates even more environmental progress.



The revival of traditional rainwater harvesting in Rajasthan, India, replenished depleted aquifers, restored irrigation for agriculture like this wheat field, and returned

the people to a normal life.

**Photo Courtesy of EcoTipping
Points Project**

“Water Warriors” in Rajasthan (India) revived traditional rainwater catchment dams in more than 800 villages, reversing a vicious cycle of depleted aquifers, dried-up wells and rivers, fuelwood depletion, agricultural decline, and population exodus, while bringing back the water, original vegetation, wildlife, and a decent life for the people.

Secrets of Success

What, then, are the main ingredients for success? What does it take to reverse the vicious cycles? The following ingredients are prominent in our success stories:

- **Outside stimulation and facilitation.** A success story typically begins when people or information from outside a community stimulate a shared awareness about a problem (i.e., how the situation is changing and what seems to be responsible) and provide fresh ideas for possible actions to deal with it.
- **Strong local institutions and enduring commitment of local leadership.** Instead of top-down regulation or elaborate development plans with unrealistic goals, we see success where there is genuine community participation, the community moving forward with its own decisions, manpower, and financial resources, while generating a sense of individual and group ownership for the achievements. Leaders who keep the restoration process on track are the “glue” in the stories.
- **Co-adaption between social system and ecosystem.** The restoration that we see in success stories occurs when human society and the environment fit and function together as a healthy and sustainable whole. At the core is a “social commons” that is explicitly tailored to managing a community’s social and environmental capital.
- **“Letting nature do the work.”** It is beyond human capacity to micromanage the environment. Doable and sustainable solutions give nature full opportunity to marshal its self-organizing powers for restoration.
- **Transforming waste into resources.** What appears to be “waste”—such as degraded land, abandoned buildings, garbage, sewage, or marginalized people—is mobilized and transformed into valued social or material capital.
- **Rapid results.** Quick “payback” helps to mobilize community commitment. Once positive results begin cascading through a system, normal social, economic, and political processes can take it from there.



The City that Ended Hunger
Belo Horizonte, Brazil did—and it wasn't that hard.

- **A powerful symbol.** A respected leader or champion for a cause, a site or landmark sacred to the community, or a compelling idea becomes a symbol for the entire effort, consolidating community commitment and mobilizing community action.
- **Overcoming social obstacles.** In today’s complex society, powerful obstacles often stand in the way of positive change. For example: demands for people’s time and attention that compete with contributing to the community; dysfunctional dependence on the status quo; governments,

organizations, or individuals that feel threatened by innovation; people who attempt to take over valuable resources after their restoration. Local autonomy can help to withstand social obstacles that emanate from outside a community.

- **Social and ecological diversity.** Greater diversity provides more choices and opportunities, and therefore better prospects that some of the choices will be effective for reaching desired outcomes.
- **Social memory.** Learning from the past can be a particularly valuable resource because it offers choices that have stood the test of time.
- **Building resilience.** The ability to “lock in” gains and withstand inevitable threats to sustaining those gains is enhanced by a community’s adaptive capacity: its openness to change based on shared community awareness, prudent experimentation, learning from successes and mistakes, and replicating success.

It should be recognized that even the best levers will not solve environmental problems overnight. It is hard work no matter how it is done. But with so many problems spiraling beyond control, it’s important to remind ourselves of what others have done to turn decline around. EcoTipping Points offer a handle for making sense of complexity—a paradigm of hope and a fresh lens for looking at both problems and solutions. They provide desperately needed reassurance that environmental and social problems are not too big, too costly, nor too complicated to be dealt with effectively.



Gerald Marten is an ecologist at the East-West Center in Honolulu and author of *Human Ecology: Basic Concepts for Sustainable Development*. His email address is gerry[at]ecotippingpoints[dot]org. He is always eager to learn of more success stories and welcomes correspondence with people who want to apply EcoTipping Point principles to problem solving in their community.

Interested?

- Click here to see EcoTipping Point Project's “How Success Works” package of educational materials.
- All That We Share
Welcome to a new kind of movement—one that reshapes how we think about ownership and cooperation.
- Restoring the Wild
How the restoration of mountain meadows can have a big impact on California's water crisis.

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