



Hope in a Changing Climate

2013 • Running time 27 minutes • Directed by Jeremy Bristow •
Featuring John D. Liu • Distributed by the Environmental Education
Media Project

Success stories from Ethiopia, Rwanda, and China prove that bringing large decimated areas back from environmental ruin is possible. The results are key to stabilizing the earth's climate, eradicating poverty, and making sustainable agriculture a reality.

See also *Lessons of the Loess Plateau*, a more detailed exploration by John D. Liu. This film shows the restoration of the Loess Plateau in China and the impact of the land's transformation on the lives of the people.

TEACHER'S GUIDE



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Ecological restoration is a pressing need of countries crippled by famine, poverty, and sociopolitical instability.

WHY I SELECTED THIS FILM

I chose this film because it provides a relevant lesson on the double benefits derived from land rehabilitation: improved food security at the local scale and climate change mitigation at the regional to global scale.

As a soil scientist interested in the role of soils in responding to climatic changes, I especially appreciate the director's description of the unique interactions existing between plants and the soil system in supporting ecosystem functions. In particular, the portrayal of soils as living things that, in turn, support life is an idea that needs to be shared more widely among our youth, and this film greatly contributes to this endeavor.

SUGGESTED SUBJECT AREAS

Conservation	Global Studies
Ecological Restoration	Media Studies
Environmental Education	Political Instability
Environmental Science	Soil Science
Food Justice	Sustainability
Geography	

SYNOPSIS

This film, through the narration of director John D. Liu, tells three successful land rehabilitation stories from China, Ethiopia, and Rwanda. These notable examples prove that it is possible to accomplish large-scale ecosystem restoration in areas afflicted by drought and centuries of poor farming practices. The positive outcomes extend beyond poverty eradication and include climate change mitigation, ecosystem biodiversity, and improved hydrology.

THE ENVIRONMENTAL JUSTICE FOCUS OF THE FILM

The concept of ecological restoration has evolved in recent years to emphasize its social nature, in addition to the more utilitarian, ecosystem-centered focus it once had. This evolution is extremely important in the context of social justice, as ecological restoration is a pressing need of countries crippled by famine, poverty, and sociopolitical instability. Progressive unsustainable agricultural practices and land overexploitation are exacerbating the already dire living conditions of millions of people on this planet. As the film skillfully describes, only in situ efforts that restore the natural capital are effective at dramatically improving social justice in these regions.

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Local people, seen as both perpetrators and victims of the devastation, became part of the solution.



REVIEWS

“It’s easy to feel hopeless about the impacts of our rapidly changing climate, so it was refreshing to view a documentary on successful programs that can help revitalize local environments to mitigate global warming.”

—Christan Bakken, *Population Education*, December 2011

BACKGROUND

The narrator, John Liu, takes the viewers on a journey around the world, from the Loess Plateau in China all the way to Ethiopia and Rwanda. The goal is to report on three different yet extremely similar success stories of land restoration and poverty mitigation. Engineers and officials describe the sense of devastation that characterized each of the three regions when they first started to develop restoration strategies. Locals were dealing with chronic poverty and famine, with no clear solution in sight except to continue the agricultural practices that caused the land degradation in the first place.

All three examples show an environment that could no longer support its natural functions, such as a functioning hydrological cycle, sustainable plant productivity, and erosion mitigation. After just a few years of rehabilitation, which included planting vegetation based on the contour of the land, nature seemed to experience a renaissance: the land became more permeable and was able to recharge groundwater reservoirs. Plants thrived, reproduced, and contributed to soil fertility through their root systems, and animals and insects repopulated the land.

Most important, the inhabitants of these regions no longer face famine and the fear of having to find new areas of fertile land. They are now able to rely on the available natural resources with new knowledge and confidence in their actions. For example, once again the land in Rwanda can provide hydropower, reducing the region’s reliance on fossil fuel and greatly benefiting both the environment and the local economy.

These success stories rely heavily on social responsibility and engagement among those living off the land, who are the very same people responsible for its degradation. As the film describes, convincing these people to embrace a different, more sustainable type of farming was probably the biggest challenge, yet it was a non-negotiable condition to guarantee the success of these efforts.

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This film can be interpreted as a call to action for us all, an invitation to embrace a renewed sense of confidence that stems from the realization that humans can reverse the damage caused to the land and to society by centuries of poor practices.

KEY LOCATIONS AND PERSONS

China, Ethiopia, and Rwanda

John D. Liu – director and narrator

Ta Fuyuan – chief engineer, Water Protection Bureau, China

Old man – villager

Cai Mantang – professor at Beijing University

Legesse Negash – professor at Addis Ababa University; founder and leader of the Center for Indigenous Trees

Gabre Giday – village chairman, Abraha Atsebaha

Ethiopian farmer

Dr. Rose Mukankomeje – director general, Rwanda Environmental Management Authority

H.E. Paul Kagame – president of Rwanda



FILM CHAPTERS OR SEQUENCES

The first segment (00:00–12:27) takes the viewer to the Loess Plateau region in China. Director Liu describes the desolation he encountered when he first visited the Loess Plateau, an area denuded of vegetation where people suffered from poverty and poor nutrition.

The second segment (12:28–18:43) describes another successful restoration project, this time in Ethiopia, a country crippled by famine and political instability. The film draws a parallel between the causes of land degradation on the Loess Plateau in China and the same conditions in Ethiopia, pointing to years of overexploitation and overgrazing as key factors. Once again, the loss of soil quality has led to famine and poverty. Through effective rehabilitation programs that mimic nature's functions, locals are now able to provide for themselves, replenish their water supplies, and mitigate the negative effects of climate change.

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The third segment (18:45–24:45) highlights how environmental degradation is not solely a problem of dry regions by using the example of Rwanda to describe the extensive devastation resulting from draining wetlands to obtain arable land. The altered hydrological cycle crippled the country’s ability to feed surface waterways as well as to provide cheap, carbon-free energy through hydropower. Consequently, Rwanda had to rely on diesel-powered engines for electricity, which came at a high price for the already impoverished population. Effective ecological restoration has allowed the region to recover and flourish while preserving the wetland ecosystems. Concomitantly, locals now have access to water, food, and clean energy while reducing their contribution to climate change.

The last segment (24:46–28:00) brings the viewer back to the Loess Plateau, where villagers today harvest fruits and vegetables from land once unable to produce any meaningful yield. Director Liu shares a hopeful message and a challenge: to look at degraded areas of the world as an opportunity for rehabilitation for the well-being of local communities, all human beings, and the planet.

DISCUSSION QUESTIONS

1. Narrator John Liu said that observing the transformation of the Loess Plateau inspired him to become a soil scientist. What is soil science, and what does a soil scientist do?
2. Can you envision the potential challenges in promoting ecological restoration in countries that are struggling with autocratic regimes and sociopolitical instability? Why would this differ from applying ecological restoration in China?
3. The movie describes how improved biodiversity is typically a by-product of land rehabilitation, even when the main goal is to regenerate the soil and improve hydrology to secure food production. Can you describe why? Why is maintaining biodiversity important for the well-being of human beings and the environment?
4. There are several commonalities among the practices adopted in the three examples described in the film. Can you identify them? What makes it possible for regions so far away from each other to have similar solutions to land degradation and poverty?

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5. The old man from Hojaigou village complains about the proposed restoration strategies by saying, “They want us to plant trees everywhere, even on the good land. What about the next generation? They can’t eat trees.” This reaction is emblematic of how people who are suffering from poverty are focused on present needs and have a hard time capturing the long-term meaning of their actions. Can you find other examples of ecological restoration efforts being hindered by the resistance of those very same people who would eventually benefit from them?
6. Can you identify the potential benefits of sustainable farming and land restoration in the United States? Describe what they would look like, why they are needed, and who would benefit from them.





ACTIVITIES

1. Look up the meaning of natural capital and discuss how the term has been used in recent years in the scientific community. Identify the main disciplines involved in the study and promotion of the world's natural capital. Look or walk outside and identify the natural capital in your surroundings.
2. Research successful ecological restoration stories in your country and describe the adopted strategy, motivation, and outcome. Compare them with those described in the film.
3. Collect a handful of soil from your backyard or garden area, or some turfgrass. Feel it in your hands. Describe what you see and feel. Do you see any roots? Is it granular? Does it stick together, or is it loose? Try to identify the organic matter that director Liu talks about in the film. Why do you think soils are defined as “living” if they differ so markedly from humans, plants, and animals?

SUPPLEMENTAL MATERIAL

1. For those interested in a deeper understanding of the roles and functions of soils in supporting life on Earth, I recommend the movie *Symphony of the Soil*.
2. For those interested in learning more about farming techniques and approaches that support and promote ecosystems' well-being without sacrificing productivity, I recommend the film *Final Straw: Food, Earth, Happiness*. This film is included in the Global Environmental Justice documentaries collection.
3. For a summary of the history surrounding the term *ecological restoration*, its evolving interdisciplinary needs, and future directions, I recommend the article “Ecological restoration should be redefined for the twenty-first century” (2017) by D.M. Martin, published in the journal *Restoration Ecology*.
4. An interesting read for those who want to better understand land degradation, its geographical extent, and ways to control it is the 2005 article by G. Gisladdottir and M. Stocking titled “Land degradation control and its global environmental benefits” in *Land Degradation & Development* journal, 16: 99–112.