



**Annual Report
2022-23**

Note from the Co-directors...

Thank you for being part of this incredible year with Rich Earth Institute! It has been a period of much growth and change, both for our organization internally and the urine reclamation movement worldwide.

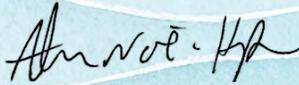
One of the most striking aspects of this year has been the ways we are connecting with people near and far who find hope and inspiration in the idea that we, as humans, can be producers and contributors to the earth. It's an age-old concept--transforming our waste into a resource--and we're honored to be a place of demonstration, research, and education for carrying forward this powerful idea to meet the challenges of our time.

Some significant internal developments are that the Institute has hired a new Co-Director, adopted an updated 3-year strategic plan, and has begun planning renovations at our Research Center to meet our growing needs.

Read on to learn what we're doing on the ground to directly protect the Connecticut River watershed from nutrient pollution and support the growth of urine recycling in other communities - all while pushing the boundaries of what we know about reclaiming urine as a fertilizer.

Thank you to all of our farmers, collaborators, and donors for your support, partnerships, urine, curiosity, questions, and ideas. We look forward to the upcoming year.

Sincerely,



Abe Noe-Hays
Co-Director, Research Director



Jamina Shupack
Co-Director, Executive Director

OUR VISION:

A world with clean water and fertile soil achieved by reclaiming the nutrients from our bodies as elements in a life sustaining cycle.

OUR MISSION:

The Rich Earth Institute engages in research, education and technological innovation to advance the use of human waste as a resource.

THEORY OF CHANGE

To achieve the paradigm shift from linear to circular, we need:

- **Demonstration Projects:** It exists, therefore it must be possible.
- **Regulatory reform:** Because old rules don't work to govern new ways of thinking.
- **Applied research:** To learn more about the impacts of conventional and innovative systems, and the opportunities for improving them
- **Education and outreach:** To foster and empower new thinking and practices.
- **Technological advancement:** Increasing access to tools enables change. This need is being pursued through our spin-off company, Brightwater Tools.

Community Peecycling

in the Long Island Sound watershed

237
Urine Donors

GENERATED...

11,582
gallons of
urine collected
this year

2
Urine Depots

In 2022, we launched our second urine depot in Bellows Falls, enabling a new community of peecyclers.

19
permanent
peecycling systems

in local homes and businesses

17
portable toilets

Our urine nutrient reclamation program demonstrates the potential of collective action to create a paradigm shift from human "waste" to resource at a community scale. This program serves as the platform for our research and education.

"Urine is such an incredible resource for our world and we are just flushing it down the toilet, using fresh water! The planet needs us to do this."

~ Lisa Delmar, Urine Donor

Hermit Thrush Brewery



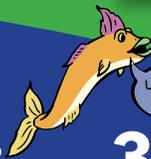
Next time ur-ine Brattleboro, take a leak at the Hermit Thrush brewery! We installed a peecycling urinal in their bathroom, and have collected 235 gallons so far.



In addition to the hay fields of our long-standing partners, we worked with local farmers to fertilize sweet corn, field corn, persimmon seedlings, and chestnut seedlings. These collaborations are part of our agricultural research projects, exploring using urine fertilizer with new methods, recipes, and crops.

For clean waters...

Peecycling keeps the nutrients in our urine out of watersheds where they become pollution and contribute to harmful algal blooms. By collecting urine, we also prevent clean water from being wasted in toilet flushes.



377,770
gallons of clean
water conserved
this year



Fertilizing Change

in watersheds across the country

...with young leaders

Through internships, ECO AmeriCorps, and youth workshops



University of
Dayton



"The positivism of nutrient recycling, that humans can contribute to food production in a way that benefits the planet instead of being purely extractive, was profoundly moving and spiritually rejuvenating."

~ Ella Ball, Williams College intern



AmeriCorps

...with gardeners

Through our "Urine My Garden" program, we are supporting gardeners in reclaiming their urine as a free fertilizer. This year, we've focused on education in the Lake Champlain and Long Island Sound watersheds, which are highly impacted by nutrient pollution.



▲ Presenting a "Urine My Garden" workshop at Shelburne Farms.

2066
people
engaged

mailed **142**
peecycling kits to
23 different states

"I was encouraged to use urine based on data I gathered at the Rich Earth Institute website and other online sources. I needed these sources to arm me with the knowledge and cautious optimism to apply urine safely and impactfully."

~ Community Science Survey Participant

...with communities

After 11 years of recycling urine in Southern Vermont, the Rich Earth team is now helping other communities start programs of their own. With an ever-growing network of partners, we are working to galvanize peecycling infrastructure in new geographic hubs, protecting more watersheds and reaching new farm partners.



The Land Institute soil ecology team applied urine fertilizer to an alfalfa field with degraded soil. In future years, they will be growing (and urine-fertilizing!) alfalfa and a perennial grain similar to wheat called Kernza.



Growing the movement

for the future of our land & water

Toward a circular bionutrient economy:

This project examines how urine can be combined with other organic wastes to build long-term soil health. Rich Earth is the lead organization on this project, with collaborators at Cornell University, University of Michigan, and Cornell Cooperative Extension of Suffolk County.

The research utilizes biochar, a form of charcoal produced from waste organic matter through the high-temperature process of pyrolysis. Biochar has potential to absorb the soluble nutrients from urine to create a slow-release fertilizer that supports crop growth, increases soil organic matter, and sequesters carbon.

We are also examining the potential for using biochar to filter and purify urine by removing chemicals like trace pharmaceuticals or PFAS. We have finished the first season of a three-year field experiment with corn, and we are conducting social research to understand farmer perceptions and determine what additional research may be required.

To learn more about this and other research projects, visit our website: [ricearthinstitute.org](http://richearthinstitute.org)



At the Rich Earth Summit...

We hosted our 8th annual Global Summit in 2022, bringing together researchers, practitioners, policy makers, industry leaders, and enthusiasts.



RICH EARTH SUMMIT PARTICIPATION AROUND THE WORLD



258
participants

26
countries

"Last year, when I attended the Rich Earth Summit, it completely changed my life. It was pretty wild being able to engage with these experts in the field and walk away with an understanding that our nutrients are valuable."

~ Thor Retzlaff, Wasted*

In the news...

The New York Times

Meet the Peecyclers. Their Idea to Help Farmers Is No. 1.

A shortage of chemical fertilizer, worsened by the war in Ukraine, has growers desperate. It just so happens that human waste has the very nutrients that crops need.

See the article [here!](#)



THE NEW YORKER

PHOSPHORUS SAVED OUR WAY OF LIFE— AND NOW THREATENS TO END IT

Phosphorus, that built the modern world, is being used up faster than ever. It's time to start thinking about how to get it back.

See the article [here!](#)



CNN BUSINESS

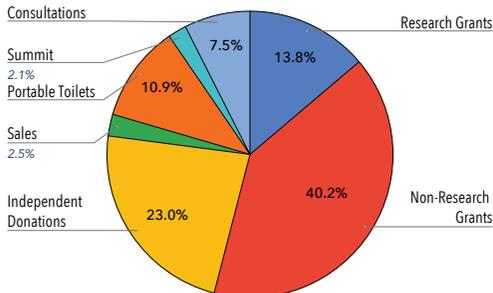


Farmers around the world are struggling. Your pee could help
Watch the video [here!](#)

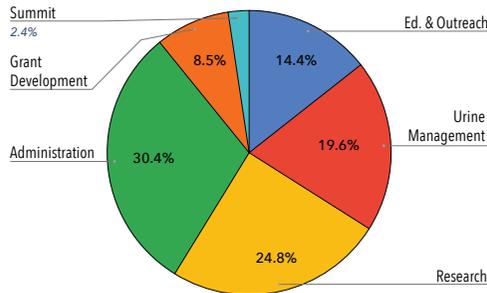
Financials

This year, Rich Earth Institute strengthened our finances. We focused on diversifying our revenue sources and are proud to say that we hit our goals! We expanded portable toilet services, started offering consultations, and opened an etsy store to sell urine fertilization kits around the country. The combination of grants, services, and donations give us a stable foundation moving forward.

Revenue: \$264,202



Expenditures: \$242,880



Funders



FOUNDATION FOR
FOOD & AGRICULTURE
RESEARCH®



Our Team

In the past year, we've expanded our team. But with just over 3 full-time equivalents and a growing scope of projects, we're working to continue to increase our staff.

Donors

We are so grateful to our generous financial donors whose support makes our work possible. Thank you!

BOARD OF DIRECTORS

Bradley Kennedy
David Cedarholm
John Hatton
Nadav Malin
Dan Marks
Jane Diefenbach
John Woodland

STAFF

Abraham Noe-Hays
Research/Co-Director
Jamina Shupack
Executive/Co-Director
Arthur Davis
Operations Director
Mike Iacona
Finance Director

Julia Cavicchi
Education Director
Jed Blume
Development Director
Tracey Martin
Bookkeeper
Cole Teranes
Portable Toilet Staff

Ryan Homeyer
Research Assistant
Gretchen Saveson
Research Assistant
Gregory Reilly
Operations Technician
Tatiana Schreiber
Social Research Director



Join us!

Pee the Change



Start peecycling in your garden:

- Join us at an upcoming "Urine My Garden" webinar
- Take our Community Science Survey

Learn about launching a peecycling program:

- Check out our Community Guide
- Complete our Community Interest Form to help us identify geographic hubs
- Contact us for information about collaboration opportunities or our peecycling consultation services

Join the global conversation:

- Register for the 2023 Rich Earth Summit, **Nov 7 - 9, 2023**
- Spread the word with your friends & neighbors!

Contribute financially:

- Donate online
- Donate by mail:
PO Box 8003, Brattleboro, VT 05304
- Stock donations • Workplace giving

Follow us online:

- Subscribe to our quarterly newsletter
- Social media



@peecyclers



@RichEarthInstitute

ricearthinstitute.org

info@ricearthinstitute.org