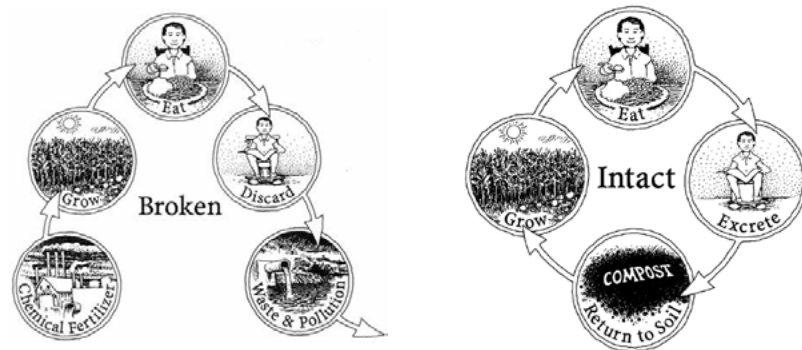


out think the box

What will you do?

Prepared for the citizenry of the East SF Bay Area, California

2 June 2025



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Recommended Citation
[“What will you do?”](#) (2025)

out think the box

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who - kimberly (kim) king

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Titles, Credentials and Certifications

<https://www.linkedin.com/in/kimgerly/>



- Ecosanitation Expert
- Renewable Energy Engineer
- Applicable Credentials and Certifications
 - 1994-1995 | Johns Hopkins University, Environmental and Health Engineering (Graduate Studies Coursework in Solid & Hazardous Waste Management)
 - 2002-2003 | 40-Hour Hazardous Waste Operations & Emergency Response Operator
 - 2015-Present | OSHA 30 Hour Training
 - 2018-Present | Ecole Polytechnique Fédérale de Lausanne (EPFL), Planning and Design of Sanitation Systems and Technologies
 - 2019-Present | Technical Advisor, US TAG to ISO/PC 318 Community scale resource oriented sanitation treatment systems
 - Letters of Recommendation from Industry Experts | <https://bit.ly/4il1jiv>

what will you do?

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Scenario 1 - A major earthquake just hit your house. Thankfully you have prepared. You have a garden. You have drinking water stored. Everything in your residence is locked down. There is one thing you did not anticipate—the plumbing has been completely knocked out. You have two flushes, and that's it. Your toilet will clog up if you flush it again. Flush toilets everywhere will be out of commission for weeks, at best.

So what are you going to do?

what will you do?

5

Scenario 2 - Imagine your neighborhood is no longer accessible for porta-potty delivery services. The roads and transportation infrastructure has been rendered inaccessible for an indefinite, protracted period of time.

So what are you going to do?

why - the opportunity

6

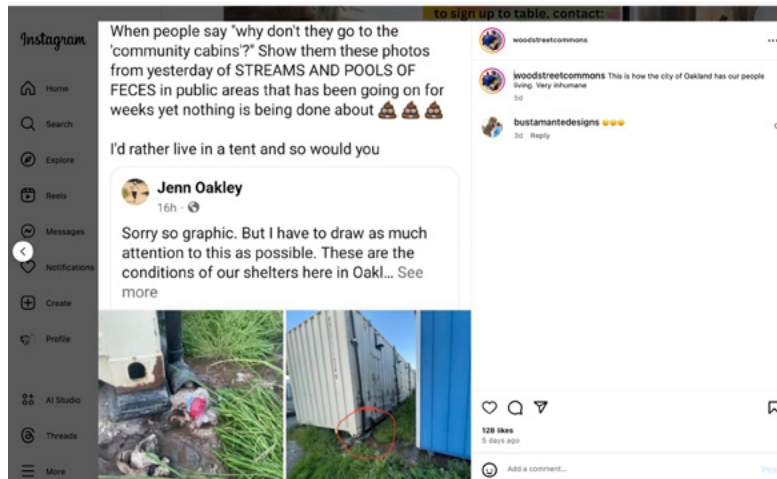
72 HOURS AFTER AN EARTHQUAKE, WHAT WILL CITIZENS DO WHEN THEY CAN'T FLUSH THEIR TOILETS?

California is attuned to earthquake readiness, but lacks:

- A robust, resilient, reliable approach to sanitation infrastructure
- A short-term project for curbside communities to...
 - ...inform a long-term disaster sanitation strategy
- An ecosan system accommodating community management and small business development

why - unsafe sanitation

7



Public health concerns are a primary reason curbside community homeless encampments are swept. Encampments will likely increase after a major earthquake:

- Open defecation
- Pollution and pests
- Safety
- Environmental

what - ecosan a permitted service offering

8



Definition: Ecological sanitation (ecosan) Safely close the loop between sanitation and agriculture.

BENEFITS:

- Destroys pathogens (eco-sanitary)
- Conserves water
- Secure
- Free of odors & vermin
- Soil nutrient opportunity
- Low cost
- Revenue generation
- Takes stress off the municipality

what - additional benefits

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IMPROVES:

- ↑ Curbside community access to dignified & safe sanitation
- ↑ Economic viability & empowerment
- ↑ Job opportunities
- ↑ Resiliency

REDUCES:

- ↓ Dependency on social services agencies
- ↓ Stress on municipal H₂O and sanitation infrastructure
- ↓ Outdoor defecation

how - performance based

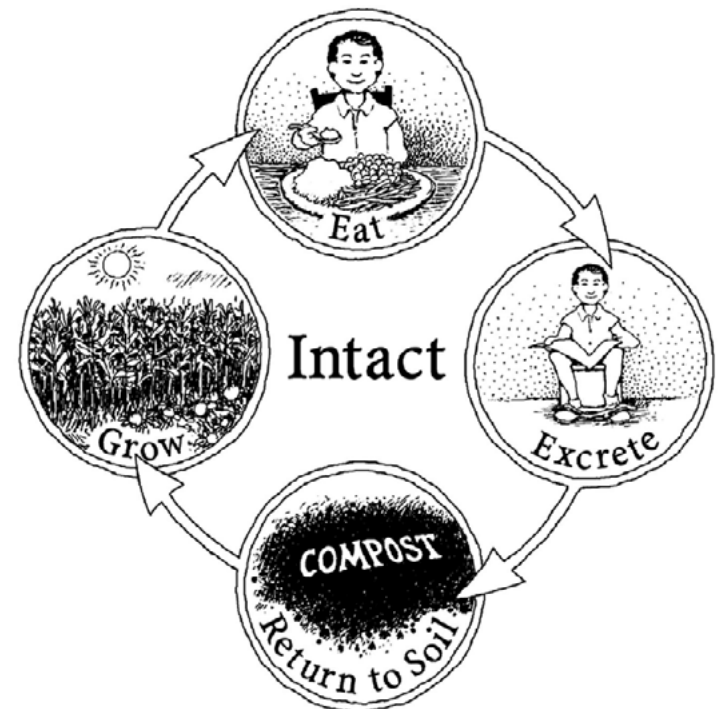
10

ecosan service

COMPARED TO FLUSH TOILETS

- Destroys pathogens
- Safe and secure
- Conserves water
- Retains nutrients
- Free of odors and vermin
- Takes stress off the municipality
- See [Restorative Sanitation](#)

Definition: Ecological sanitation (eco-san) Safely close the loop between sanitation and agriculture.



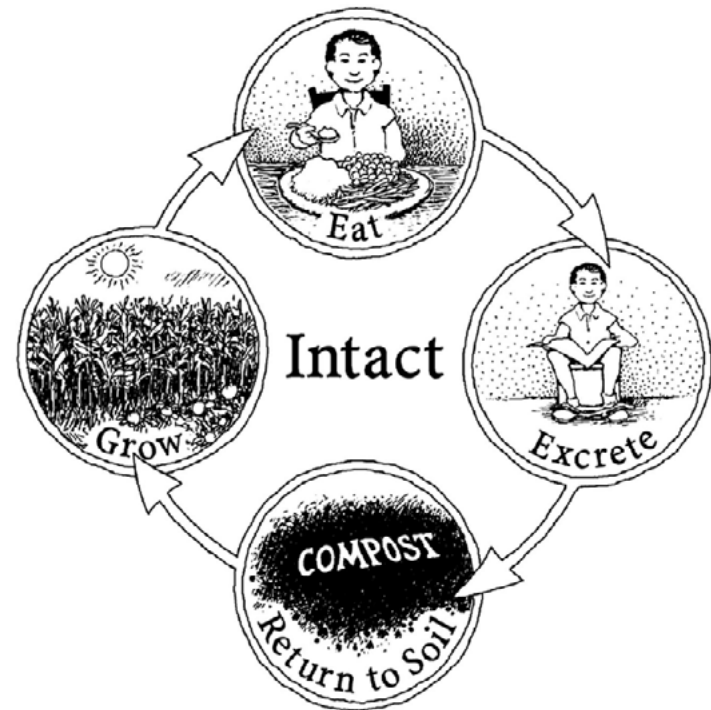
what - to also consider

11

COMPARED TO EXPENSIVE PORTA POTTIES

How can a more dignified, cost-effective, safe, neighborhood-friendly eco-san service be accessed by curbside communities while they wait 6-12-24-36-48 months for truly affordable housing to become available?

Definition: Ecological sanitation (eco-san) Safely close the loop between sanitation and agriculture.



how - ecosanitation

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ONE SOLUTION

Community container-based ecosan (CBeS) dry compost toilet processor system

Kailash EcoVillage

- First of it's kind in the USA
- Accommodates ~50 persons
- 2019 [IWA Research Paper](#)
- **2019** [SE PDX Permit](#)

Composting Processor	Features
Bins (9 count, 3 modules)	DIMENSIONS <ul style="list-style-type: none">• Exterior (~25' x 19')• Interior (48" x 48" x 48" ~2.4 yards³) WALLS <ul style="list-style-type: none">• Durable, low-cost, 8" x 8" x 16" concrete blocks (insulation)• Vermin proof• Wooden sill plate for roof support (located on top of walls) BOTTOM <ul style="list-style-type: none">• Sloped concrete pad (4" above pad perimeter lip)• Waterproof• Center drain grate (leachate collection) ROOF ASSEMBLY (sloped) <ul style="list-style-type: none">• Corrugated, galvanized steel• Rain accumulation prevention• Vermin mitigation• Hinged• 3-bin module shares a common roof• No electricity, water, plumbing connections required
Sump Area (Plumbing)	Leachate collection includes drain grate, sump barrel, sump lid: 2" ABS piping with 1/4" per foot slope, 2" ABS fittings; Contamination prevention of local soil and groundwater
Ventilation	Wire mesh screen air vent (hardware cloth); Vermin and insect management; ~70 in ²
Security	Gated courtyard (hinged and latched)



[VIDEO - Go to 24:08] <https://bit.ly/3XeaK0w>

how - ecosan systems

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Operational ecosan systems in CA & TX:

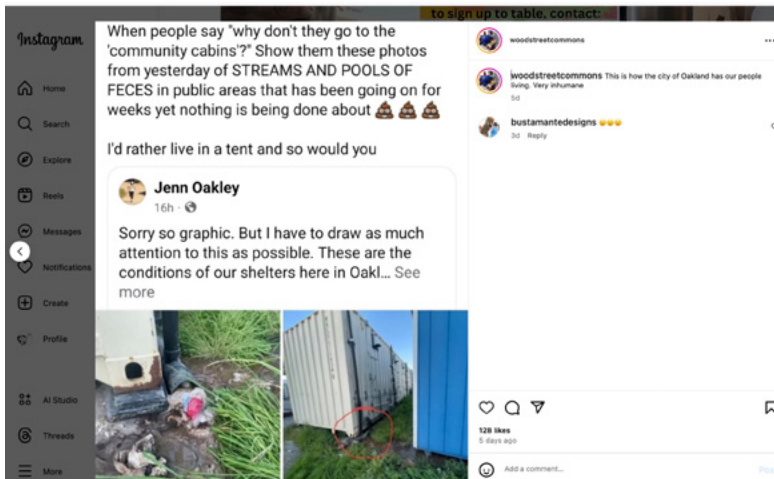
- **2 users** - Amador Ranch (Pioneer, CA)*
- **2-6 users** - Hucklebilly Ranch (Big Sur, CA)*
- **2-10 users** - Monastery (Kelseyville, CA)*
- **10 users** - Sanctuary (Brooks, CA)*
- **20 users** - Here/There Encampment (Berkeley, CA)
- **20+ users** - Habitable Spaces (Kingsbury, TX)*



* Denotes installed, executed, and operational

how - empathy exercise

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Do not flush any toilets you use for:

- (preferably) 72 hours, OR
- 48 hours, OR
- (at least) 24 hours



Context: This is what curbside communities deal with hourly and daily.

what i need

BUY-IN, SUPPORT & LEVERAGE FROM:

- **YOU** - Citizens interested in learning how to safely manage their humanure in the built environment
- EBMUD - Eileen White, Director of Wastewater & Dave Briggs, Director of Operations and Maintenance
- CA Water Board - Johnny Gonzales, PE ChmE, Senior Water Resources Control Engineer
- Alameda Environmental Health - Dillan Roe, PE, C7370 Chief – Land Water Division
- Alameda Emergency Services - Brentt Blaser, MA, CEM® | Emergency Manager, Alameda County Sheriff's Office
- Waste Management Businesses - Waste Management, United Site Services, etc.
- FEMA Region IX - Christine C Borgognoni, Preparedness and Analysis Branch Chief. National Preparedness Division

resources & references

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*Community Dry Toilet and Urine Diversion
System Using IAPMO WE•Stand © 2018*

*Sanitary Compost Preparedness, Response
& Service Opportunity, 31 Aug 2018*

*Research Article IWA Blue-Green Systems
Online Vol 1, No 1, 30 July 2019*

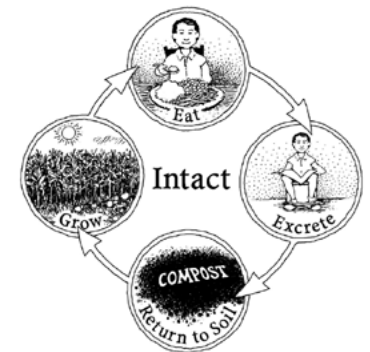
*City of Oakland, CA, Notice of
Qualification, 2 Feb 2022*

Restorative Sanitation Panels



Out think the box.
Prepare. Respond. Adapt.

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Everyday brilliance for disaster resilience—Out Think The Box

out think the box

What will you do?

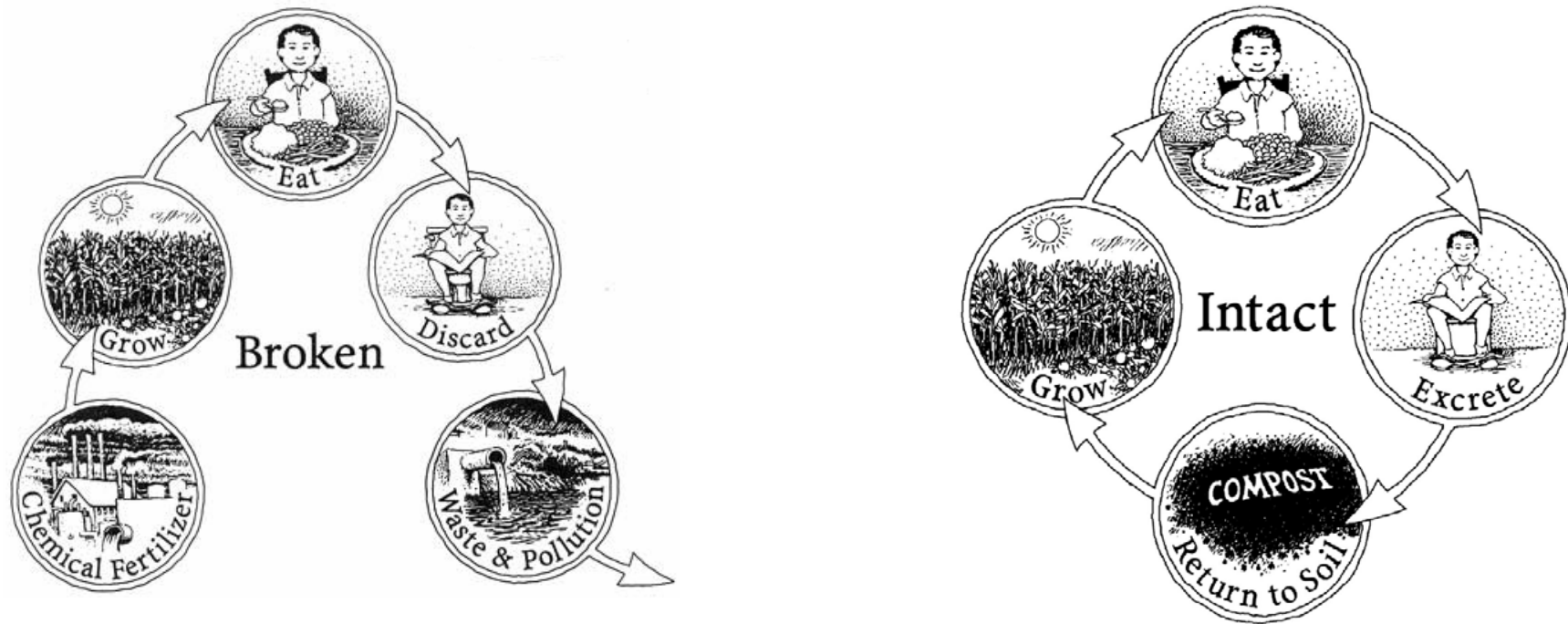


Image Citation: Jenkins, J., 1998. *The Humanure Handbook, 2nd Edition*, http://weblife.org/humanure/chapter2_1.html