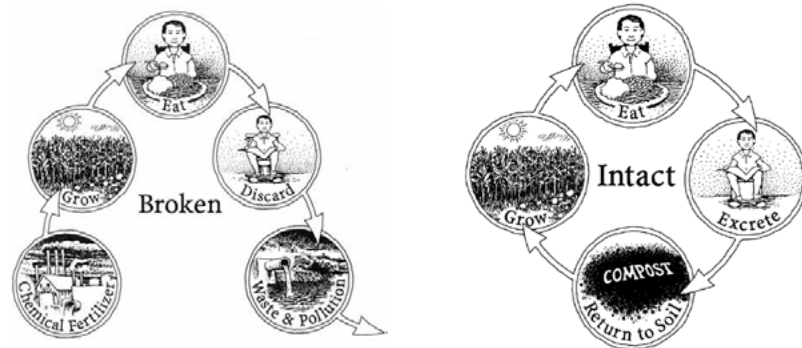


# out think the box

## Why Not Have Ecosan in Berkeley & Oakland, CA?

*Prepared for CA State Senator Jesse Arreguín*

5 May 2025



Kimberly King

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Renewable Energy Engineer

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Recommended Citation

"Why Not Have Ecosan in Berkeley & Oakland, CA?" (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/>

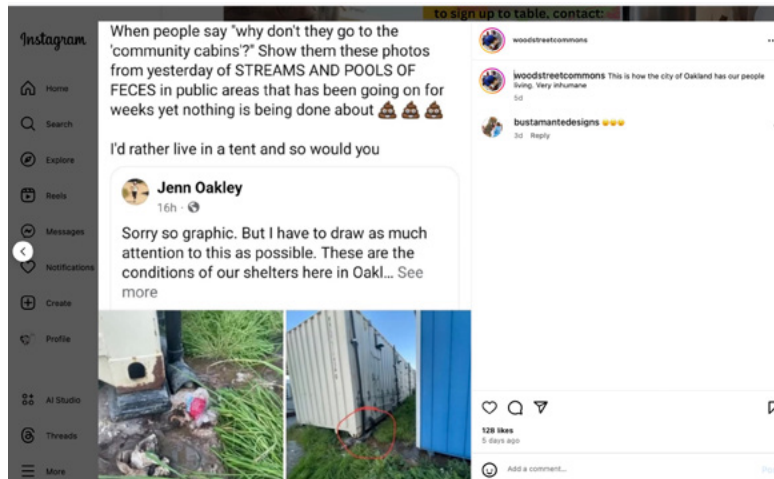


- Ecosanitation Expert
- Renewable Energy Engineer
- Applicable Credentials and Certifications

- 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>

# why - unsafe sanitation

4



Why not have ecosan in Berkeley & Oakland?  
Public health concerns are a primary reason curbside community homeless encampments are swept:

- Open defecation
- Pollution and pests
- Safety
- Environmental

---

# why - the opportunity

5

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

# what - ecosan a permitted service offering

6



**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

7

## IMPROVES:

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

## REDUCES:

- ↓ Dependency on social services agencies
- ↓ Stress on municipal H<sub>2</sub>O and sanitation infrastructure
- ↓ Outdoor defecation



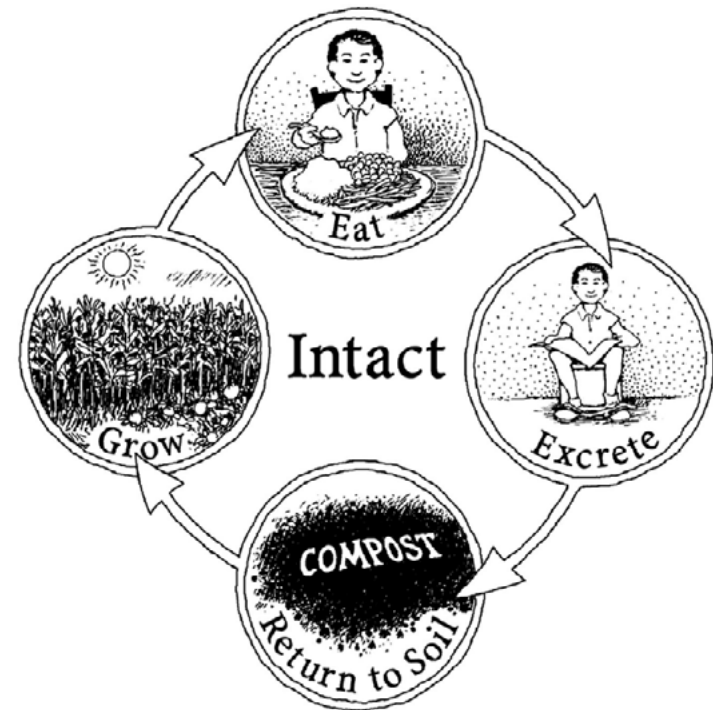
# what - to consider

8

## 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.*





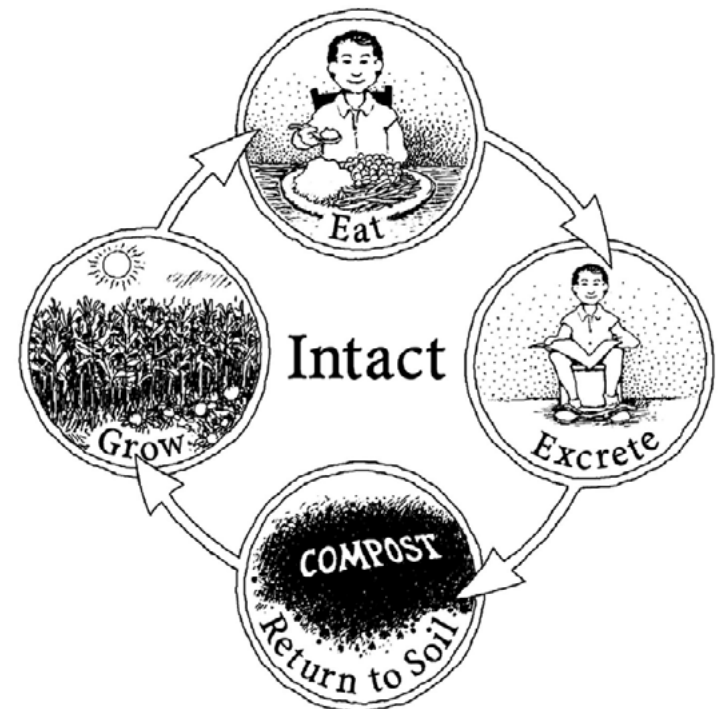
# how - performance based ecosan service

9

## 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.*



# how - ecosanitation

10

## ONE SOLUTION

### Community container-based ecosan (CBS) dry toilet processor system

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

## Kailash EcoVillage

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

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

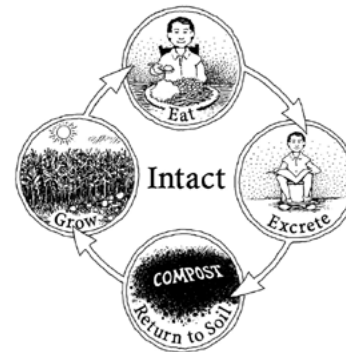


# how - ecosan systems

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## Operational ecosan systems in CA & TX:

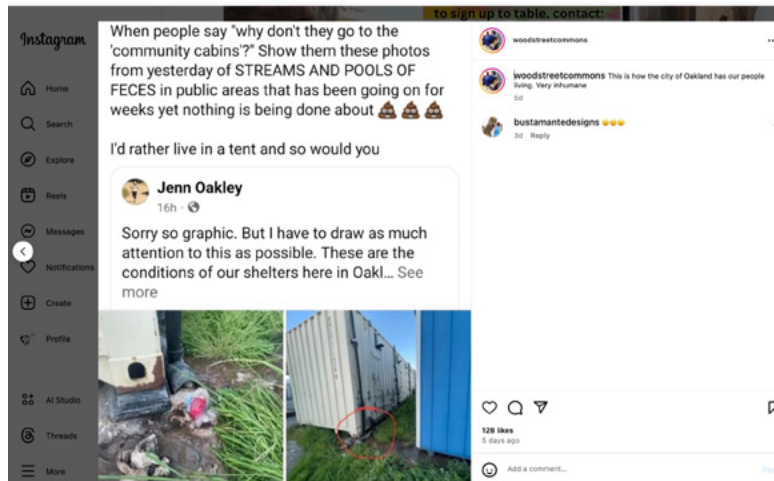
- **2 users** - Amador Ranch (Pioneer, CA)\*
- **2-6 users** - Hucklebilly Ranch (Big Sur, CA)\*
- **2-10 users** - Monastery (Kelseyville, CA)\*
- **10 users** - Sanctuary (Brooks, CA)\*
- **20 users** - Here/There Encampment (Berkeley, CA)
- **20+ users** - Habitable Spaces (Kingsbury, TX)\*



\* Denotes installed and executed

# 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.



## BUY-IN, SUPPORT & LEVERAGE FROM:

- 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*

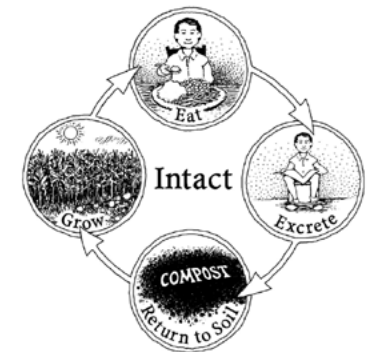
*City of Oakland, CA, Notice of  
Qualification, 2 Feb 2022*

*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

## Why Not Have Ecosan in Berkeley & Oakland, CA?

