

Dry Public Toilets in France



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History of the Dry Toilets in France

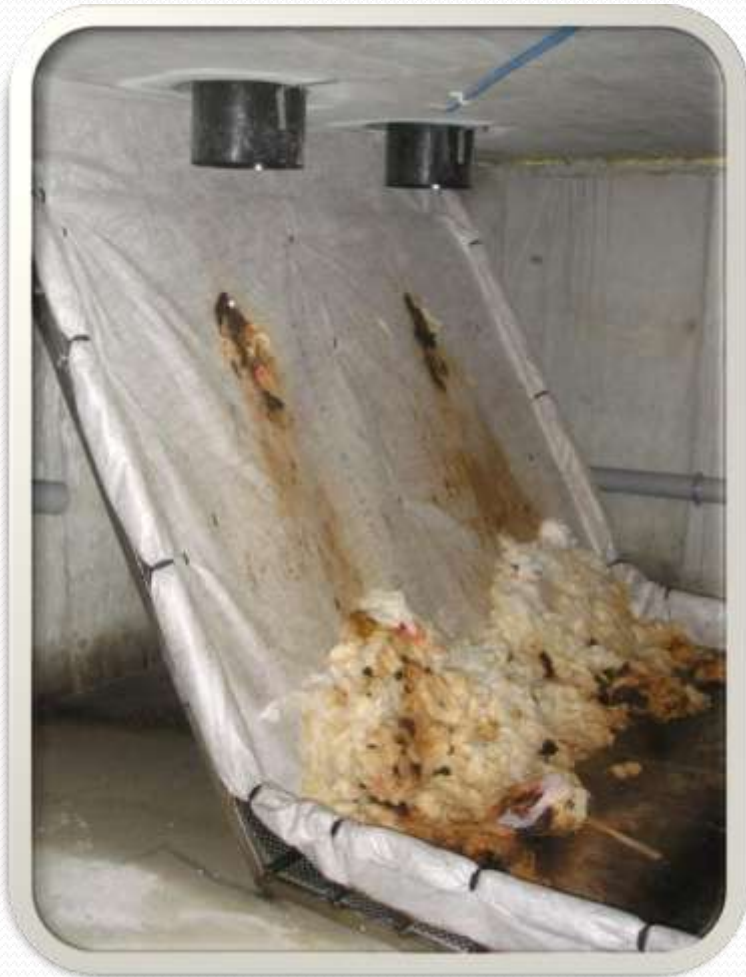
- Ecosphere' Manager Pierre COLOMBOT began studying existing techniques in the 70'
- After 10 years, in 1981, he started to test several systems
- In 1991, Ecosphere Technologies was created in order to manufacture and commercialize different systems, 15 years before its competitors

Ecosphere presence in Europe

- The first partners were mountain refuges
- Then skiing stations and natural parks
- Today, 80% of our activity is with French cities
- Currently we also equip highway service areas



First system: the Saniblanche



- Clivus-Multrum' inspired
- Installed from 1981 to 1990
- Problems: Matters do not slip along the slope
- Flies invasion in summer
- Odors due to the mix
« urine + feces »
- It does not compost

Bétonnière (« Cement Mixer »)

1988 to 1994





- All matters fall into a large slanted pipe
- This pipe is activated by a pedal, the rotation enabling the oxygenation and the progressive fall of matters
- problem: gets quickly filled up in case of intense frequentations, and at the end the matters are dry but not composted

Upgraded with a storage and drying system



- Matters fall into a carousel
- it increases the storage capacity
- Drying process accelerated by mechanical ventilation
- Pbs: urines still mixed up with matters, and the whole system required a too important area

Creation of a conveyor belt



- Developed in 1999
- A slanted conveyor belt, located under the pan, separates urines and matters
- The treadmill, activated by the pedal, convey the matters in a carousel



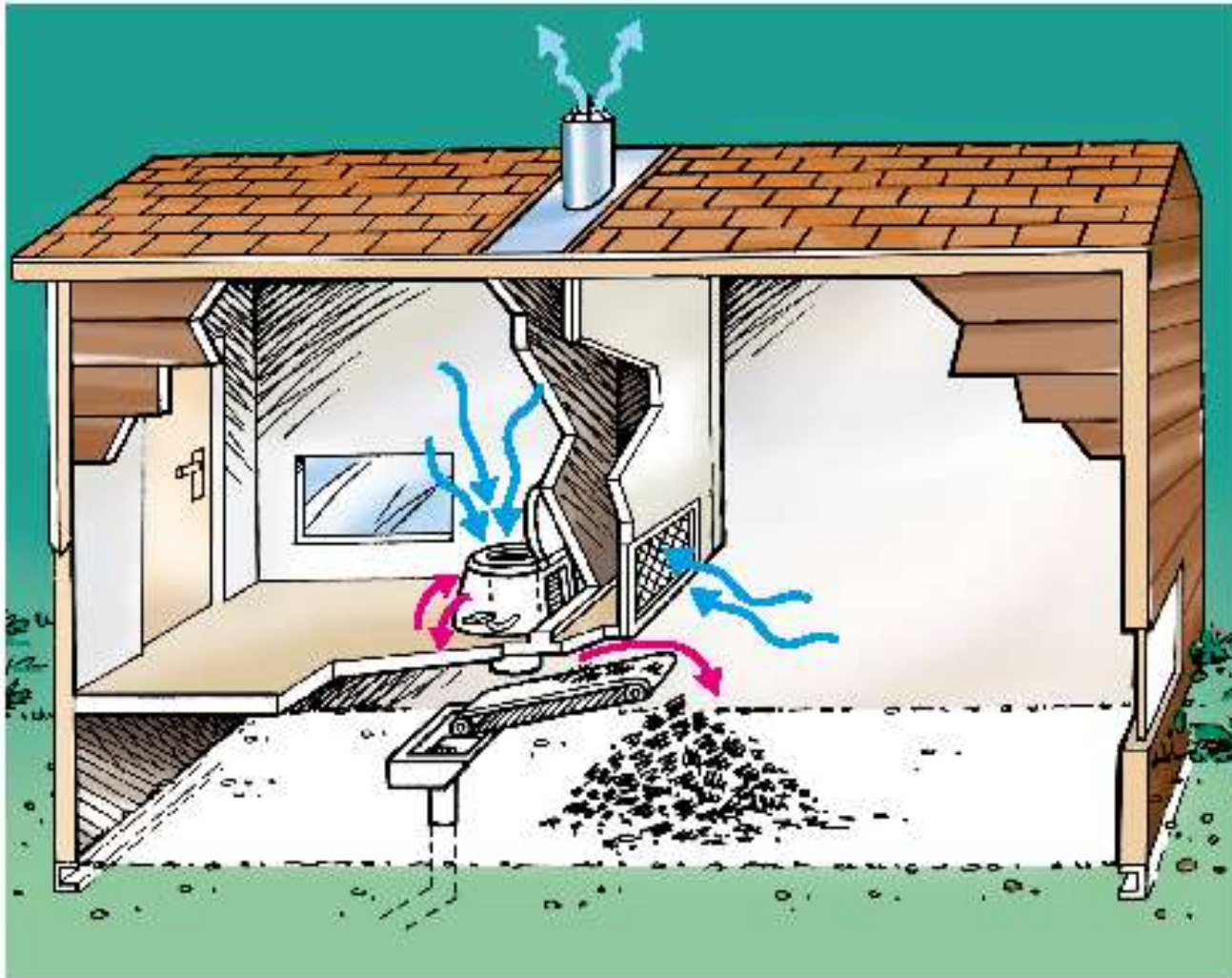
- System upgraded with a divided carousel, filled with bags
- You just have to close the filled up bags (20 kg) and replace them
- System still used in mountains above 2500 meters

Upgraded to enhance reliability



- From adhesion driven to gear driven transmission
- Problems: noise when activated and necessity for a movement increasing gear to facilitate the movement transmission in case of high frequentation

2004: Vermicomposting



Mechanical separation combined with vermicomposting



- Earthworms, by circulating into the pile, accelerate the composting process
- Mass reduction enables high frequentations management without any intervention

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- Self-regulated worm colony
- Pathogens are destroyed
- Produces mature and stabilized compost

Vermicomposting: a rational choice

- Comfort for the user, no smell in the cabin thanks to a natural passive ventilation
- Manages high frequentation thanks to a large storage area and vermicomposting mass' reduction
- No maintenance and no operation cost
- Significantly cheaper than building infrastructures (water, electricity, sewage)

Our success enables us to invest in R&D. One of 2012' innovation being... the vegetal roof!





Thank you for your attention