COMPOST FILTER

AN INNOVATIVE SUSTAINABLE SANITATION SOLUTION
Sanitation for the mountain places is sometimes a problem.

COMMON APPROACHES MAY NOT WORK
PIT LATRINE?

- BAD SMELL
- COLD
- TOO FAR FROM THE HOUSE
- POLLUTION AND LOSS OF NUTRIENTS
WATER TOILET + SEPTIC TANK + LEACH FIELD?

- Expensive and difficult to build and provide service
- Pollute the environment
DRY COMPOST TOILET?

- Too big to use within existing buildings
- Do not meet users expectations
SOLUTIONS?
COMBINATION OF WATER AND COMPOST TOILET TO USE ADVANTAGES OF BOTH APPROACHES
PRINCIPLE OF THE COMPOST FILTER

• TWO IDENTICAL SWAPPING CHAMBERS. ACTIVE AND RESTING
• THE ACTIVE CHAMBER RECEIVES BLACK WATER FROM FLUSH TOILET TOGETHER WITH ADDED BULK FILTERING MATERIAL
• FECAL MATERIAL AND TOILET PAPER ACCUMULATED IN THE ACTIVE CHAMBER AND GO THROUGH THE PROCESS OF DEWATERING AND AEROBIC COMPOSTING
• THE FILTERED LEACHEATE FROM ACTIVE CHAMBER GOES TO INFILTRATION SYSTEM (SUB SOIL INFILTRATION, CONSTRUCTED WETLAND, EVAPOTRANSPIRATION BED)
• WHEN FULL THE ACTIVE CHAMBER SWITCHES TO RESTING MODE AND ACCUMULATED MATERIAL GOES THROUGH THE FINAL AEROBIC COMPOSTING PROCESS. THE EFFLUENT FROM WATER TOILET DIRECTED TO THE OTHER CHAMBER
• AFTER 1 YEAR THE RESTING CHAMBER IS EMPTIED AND BECOMES READY FOR THE NEXT ACTIVE/RESTING CYCLE. THE COMPOST IS USED FOR PLANTS GROWING
PRINCIPLE OF THE COMPOST FILTER

- Inflow
- Filled Chamber
- Active Chamber
- Ground
- Fibrous Web (Geotextile)
- Venting Material
- Bulking Material and Sludge
- Wood Chips
- Gravel
- Drain Material
- Outflow
- Concrete
COMPOST FILTER
COMPOST FILTER AT WORK
MATERIALS FLOW THROUGH COMPOST FILTER SYSTEM

- Bulk filtering material
- Water toilet
- Black water
- Compost filter
- Leachate
- Infiltration
- Compost
EFFICIENCY

• WELL TESTED FOR UP TO 40 PEOPLE

• THE BOD OF EFFLUENT (LEACHEATE) FROM THE COMPOST FILTER IS LESS THAN 100 MG PER LITER (BETTER THAN SEPTIC TANK)

• WORKS WELL AT TEMPERATURES AS LOW AS -10 DUE TO ENERGY RELEASED DURING COMPOSTING PROCESS
ADVANTAGES

• CAN BE CONSTRUCTED ON SITE FROM LOCAL MATERIALS (STONES) AT REMOTE PLACES
• MINOR EARTH WORKS NEEDED COMPARED TO SEPTIC TANK
• CAN BE OPERATED AND MAINTAINED BY OWNERS WITHOUT SPECIAL EQUIPMENT
• THE PRODUCTS (COMPOST AND LEACHEATE) CAN BE USED AS FERTILIZER ON SITE
• GOOD FOR COLD CLIMATE
• NO ENERGY USED UNLESS FOR PUMPING WHERE NO GRAVITY FLOW IS POSSIBLE
• HEAVILY GREASED EFFLUENT FROM KITCHEN CAN BE EASILY PROCESSED THROUGH COMPOST FILTER
DISADVANTAGES

• NEEDS MORE MAINTAINENCE THAN SEPTIC TANK (REGULAR ADDITION OF BULK MATERIAL)
• NUMBER OF PEOPLE SERVED IS LIMITED
• THE SYSTEM MAY CLOG IF PROPER MAINTANENCE IS NOT PROVIDED