

Waste to Resources

Nepal Environment and Tourism Initiative
Foundation

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Composting

Definition

Composting is the **biological decomposition of organic matter**. We practice it to recycle unwanted organic materials, such as yard trimmings and food scraps, and to produce compost, a valuable soil amendment. Finished compost takes on many of the characteristics of humus, the organic fraction of soil. Like humus, compost improves garden soils and aids in plant growth. While composting occurs naturally, human intervention can accelerate it. The quality of the compost and the production speed depend upon several factors that human composters can manipulate.

Composting Process

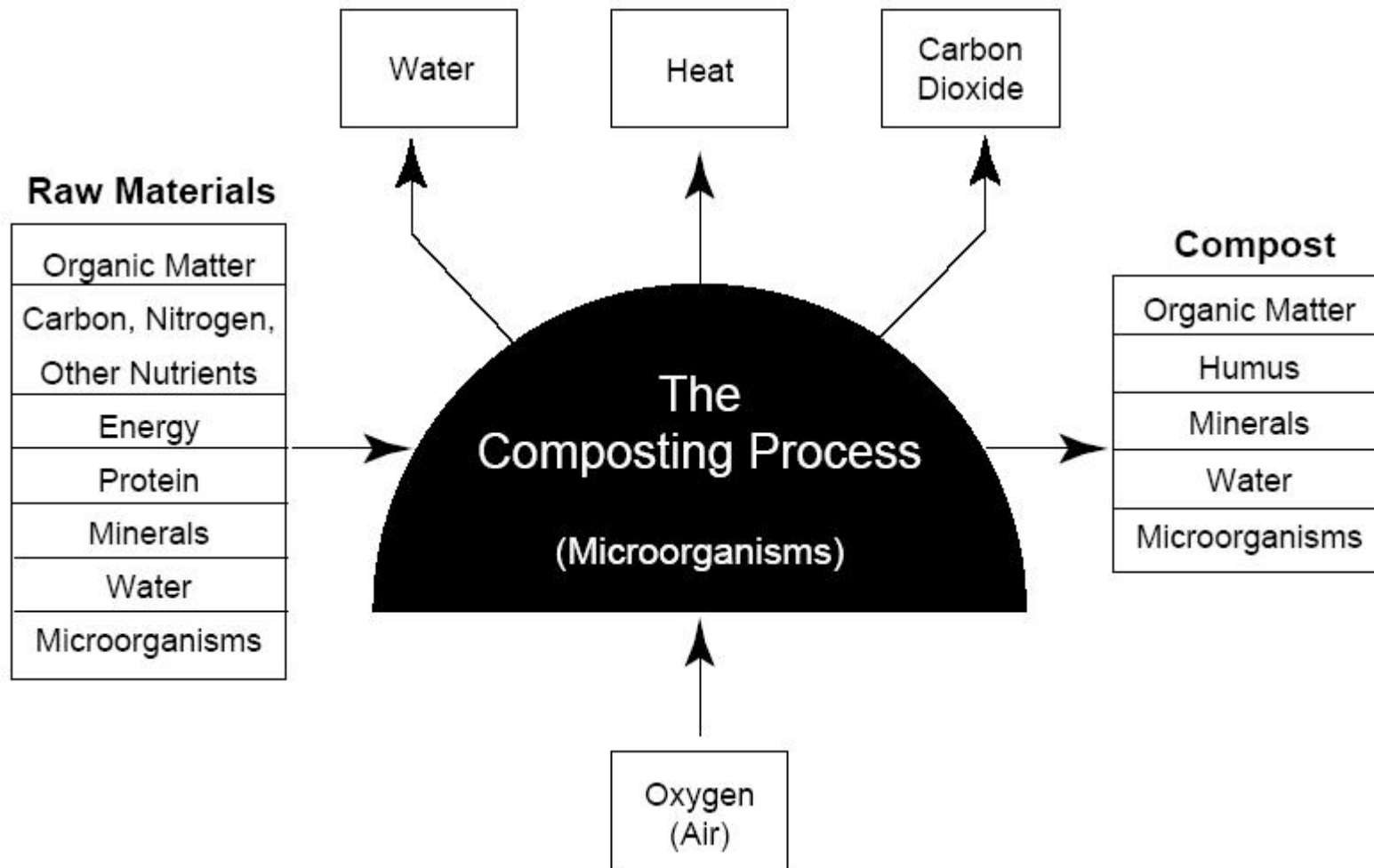


Figure 1

Table 1: Temperature clue

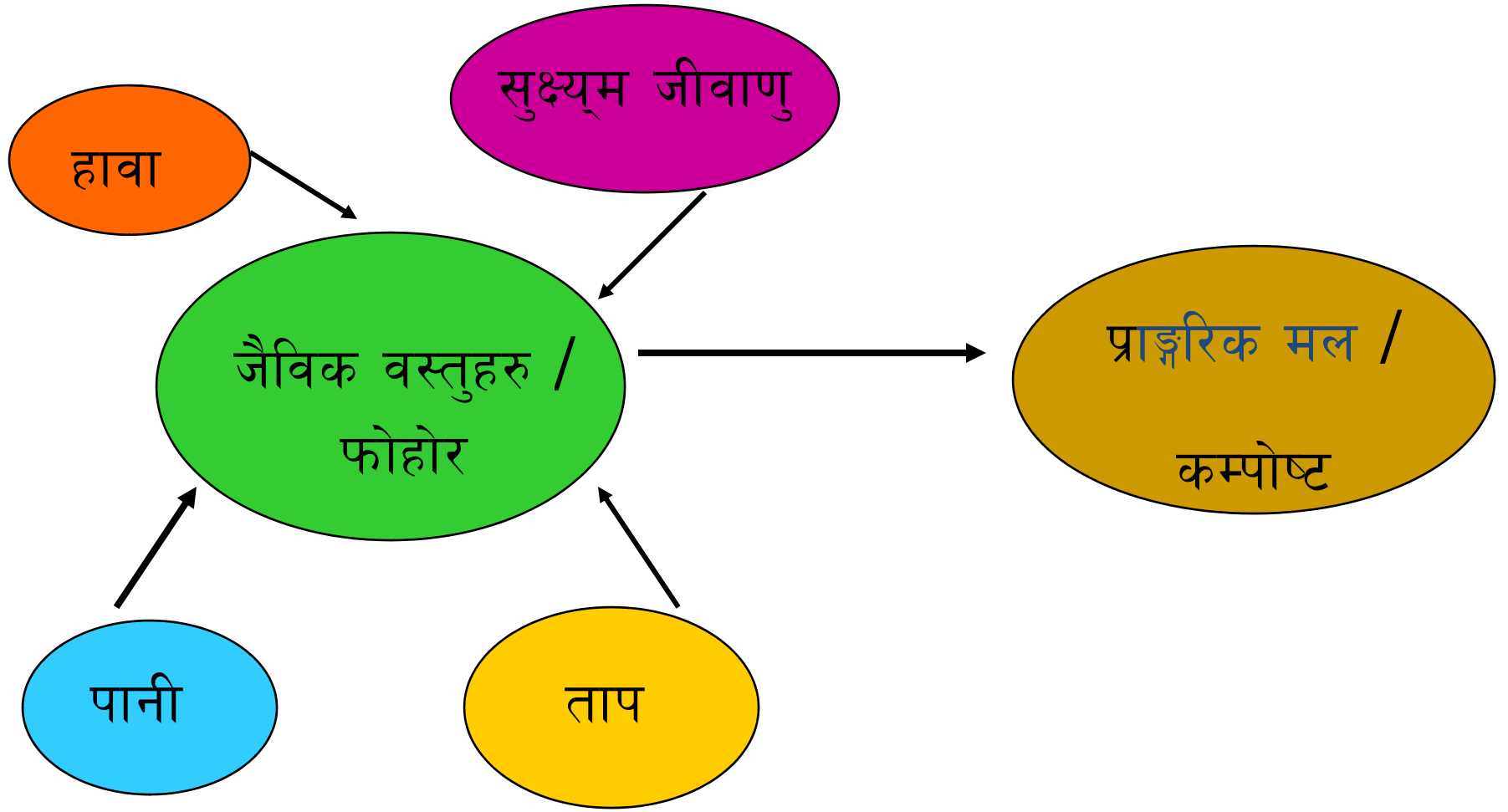
Clue	Temperature level
Material is frozen beneath the surface	Frozen—little activity
Pile feels cold, colder than the surrounding air	Low—slow rate of composting
Pile feels warm, not hot	Moderate—rapid composting
Pile is steaming and hot to the touch	High—rapid composting
Pile is hot to the touch and the material inside of the pile looks or smells charred	Too high—undesirable

*These are rough guidelines. Actual conditions depend on factors such as pile size, materials, and composting stage.

Table 2: C:N Ratio

	Material	C:N ratio
BROWNS	Dry leaves	60:1
	Corn stalks	60:1
	Straw	80:1
	Shrub trimmings	50:1
	Waste paper	400:1
	Wood (sawdust, shavings, etc.)	500:1
GREENS	Grass clippings	17:1
	Kitchen scraps	15:1
	Vegetable culls	12:1
	Cattle manure	18:1

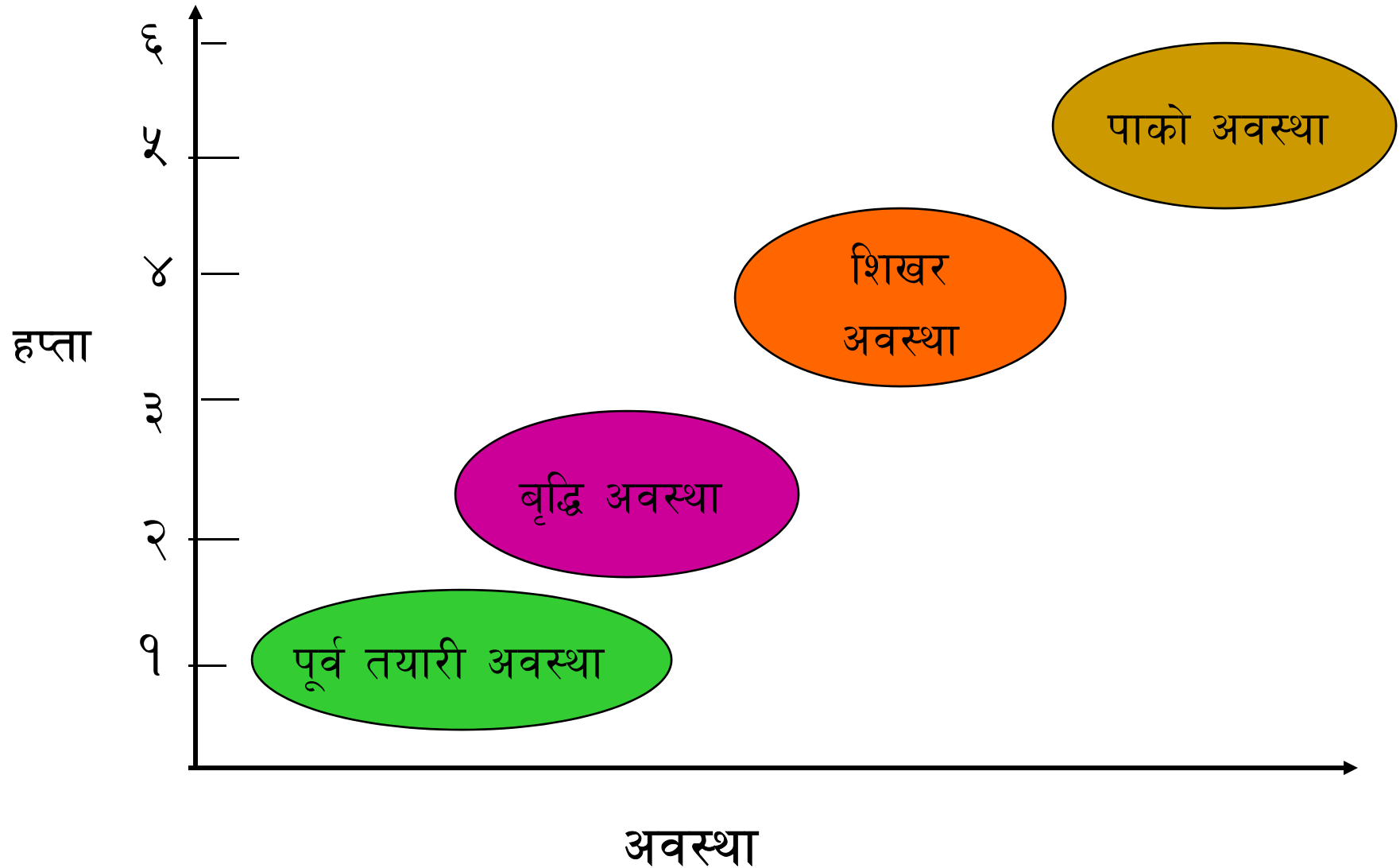
प्राङ्गरिक मल बनावुने प्रक्रिया / कम्पोस्टिङ्ग



प्राङ्गरिक मल बनाउंदा ध्यान दिनुपर्ने कुराहरु

- पौष्टिक सन्तुलन (C:N ratio)
हरियो पदार्थ (Nitrogen) र खैरो पदार्थ (Carbon) को सन्तुलन
- वस्तुको आकार सानो बनाउने
- पानीको मात्रा (४० % - ६० %)
- तापक्रम (२५ °C - ३० °C)
- हावाको प्रवाह
 - नियमित पल्टाउने, छिद्रदार पाइपहरु राखेर
- पी.एच. मानको सन्तुलन (PH Value)
- जोडन (सुक्ष्म जीवाणु)

प्राङ्गरिक मल बन्ने अवस्थाहरु

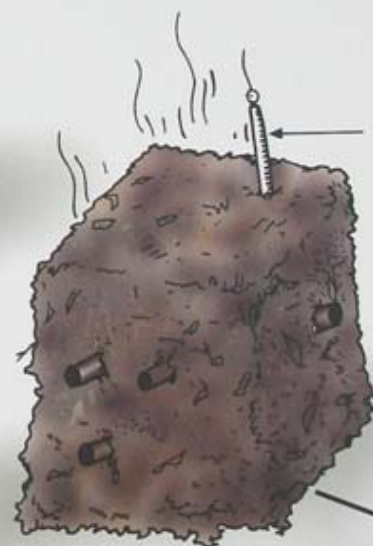




पूर्व तयारी अवस्था



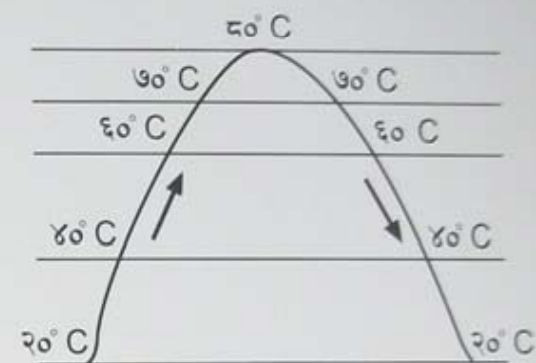
बृद्धि अवस्था



शिखर अवस्था



पाको अवस्था



मल बन्ने क्रममा तापक्रमको बृद्धि

क. हावाको अनुपस्थितिमा मल बनाउने तरिका



ड्रम भाँडा तरिका



खाडलमा फोहर हालेको



मरेको खाडल माटोले छोपेको

खाडल तरिका

ख. हावाको उपस्थितिमा मल बनाउने तरिका



ड्रम कम्पोष्ट भाँडा तरिका



थुप्रो तरिका



प्रथम तहको फोहर र पाइप राखेको

दोस्रो तहको फोहर राखेको



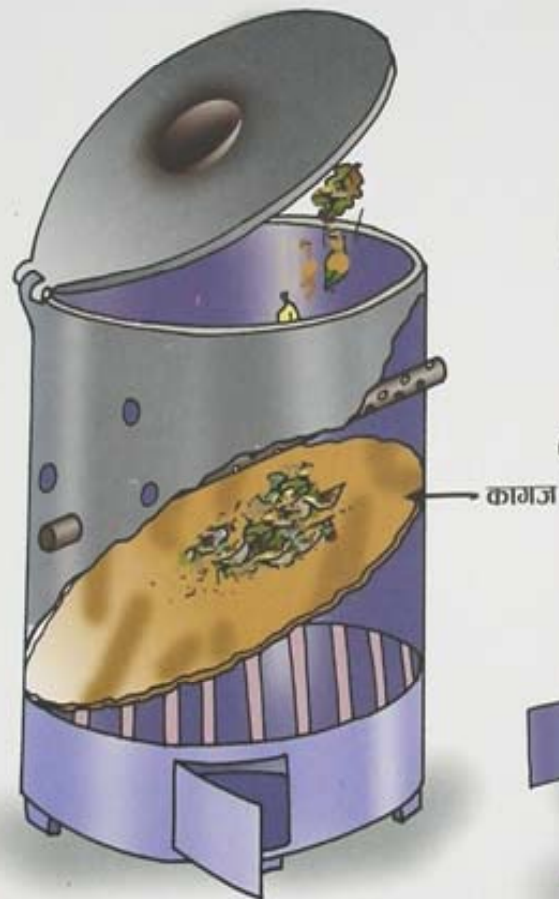
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दोस्रो तहको पाइप राखेको

ड्रम कम्पोस्टिङ्ग



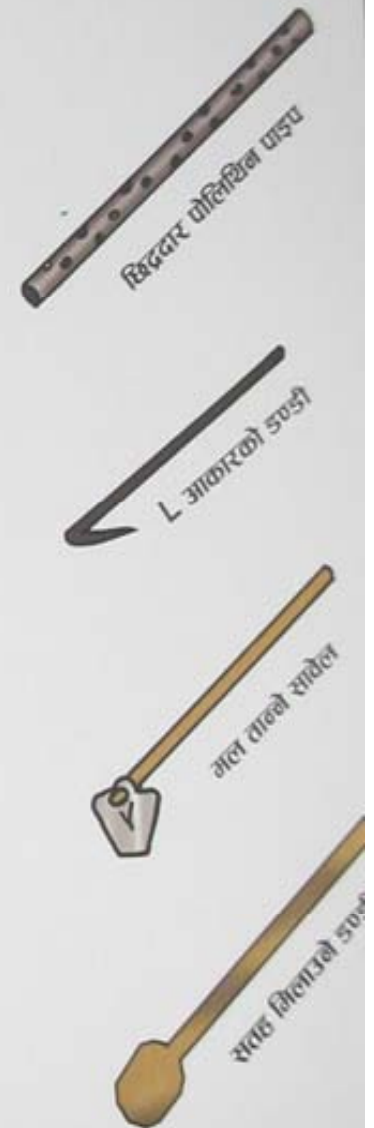
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डण्डीको फ्रेमलाई छोप्न लागेको

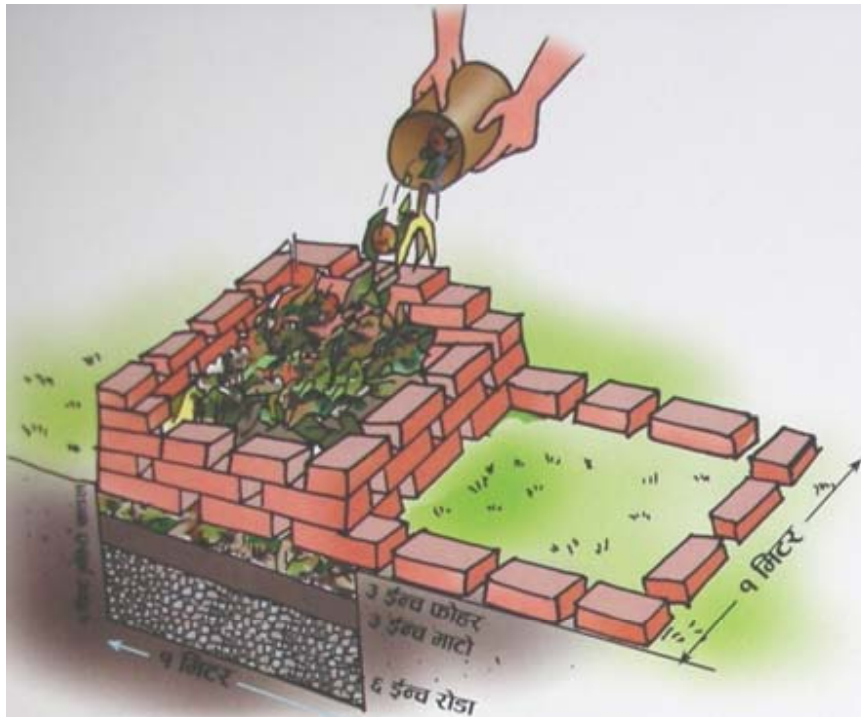


भाँडाको भित्री भाग देखाएको

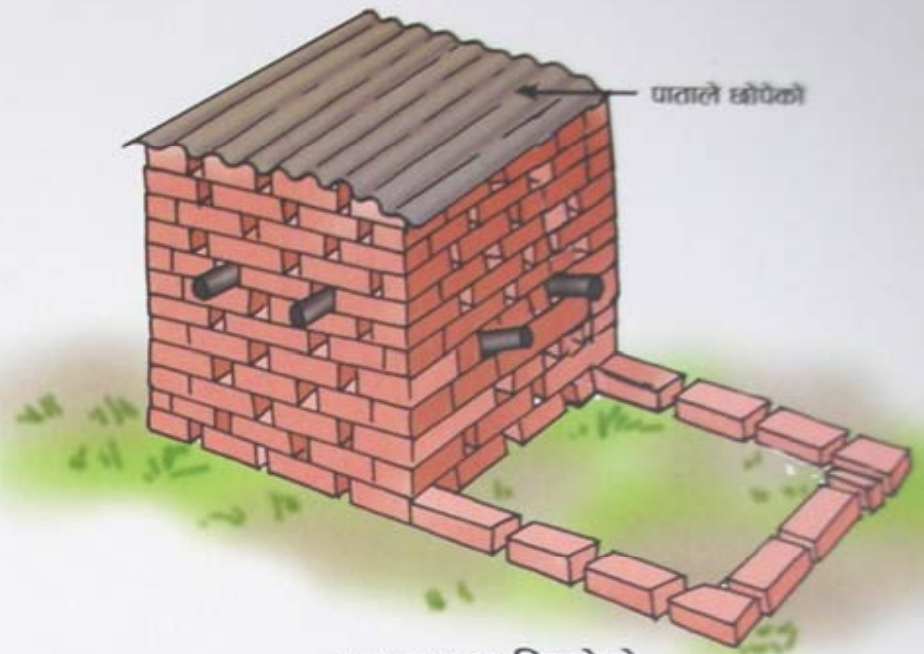


ड्रम कम्पोस्टिङ्ग





खाडल माथि फुक्का ईटाले पर्खाल बनाएको



एक खण्ड भरिसकेको



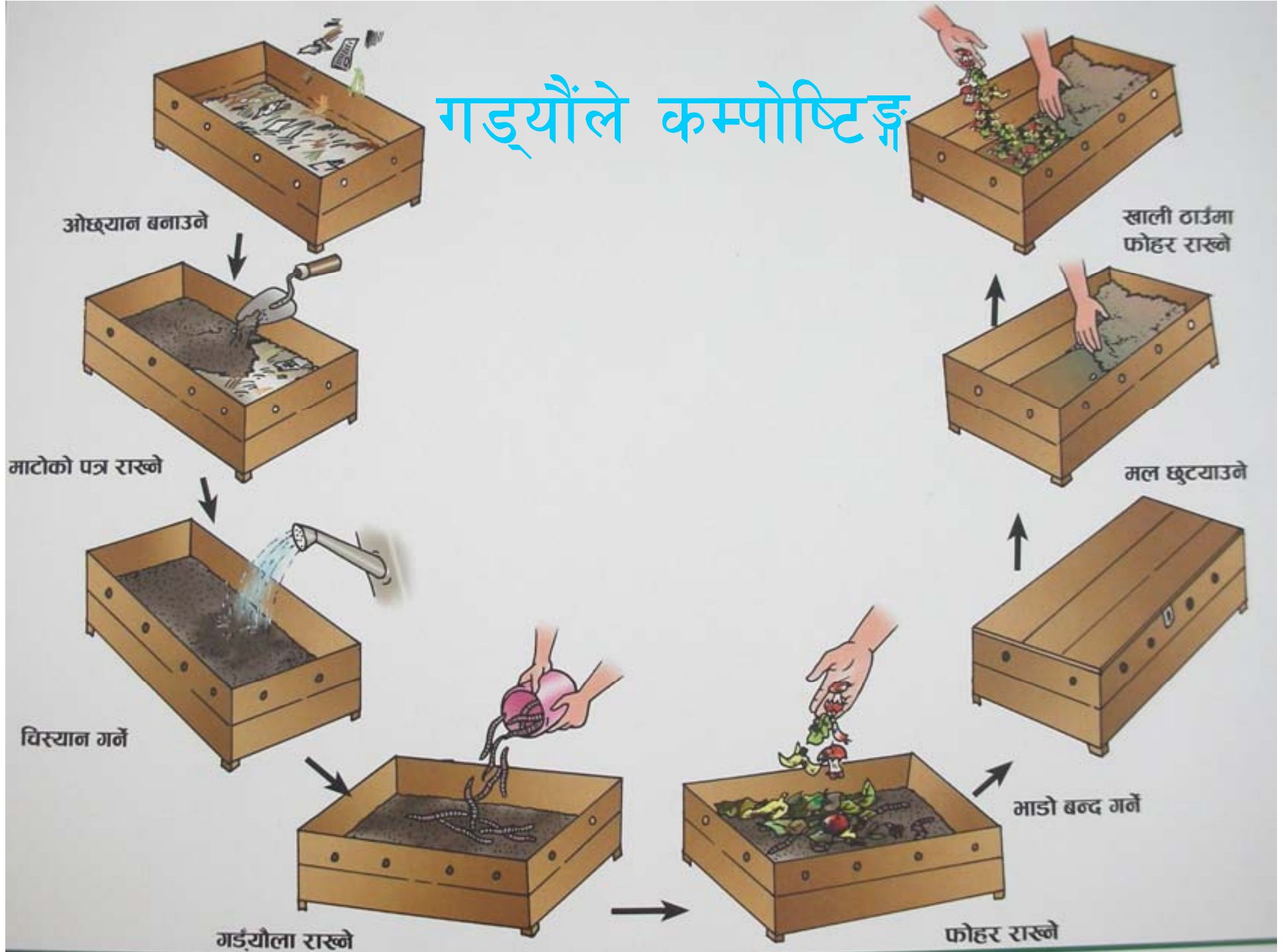
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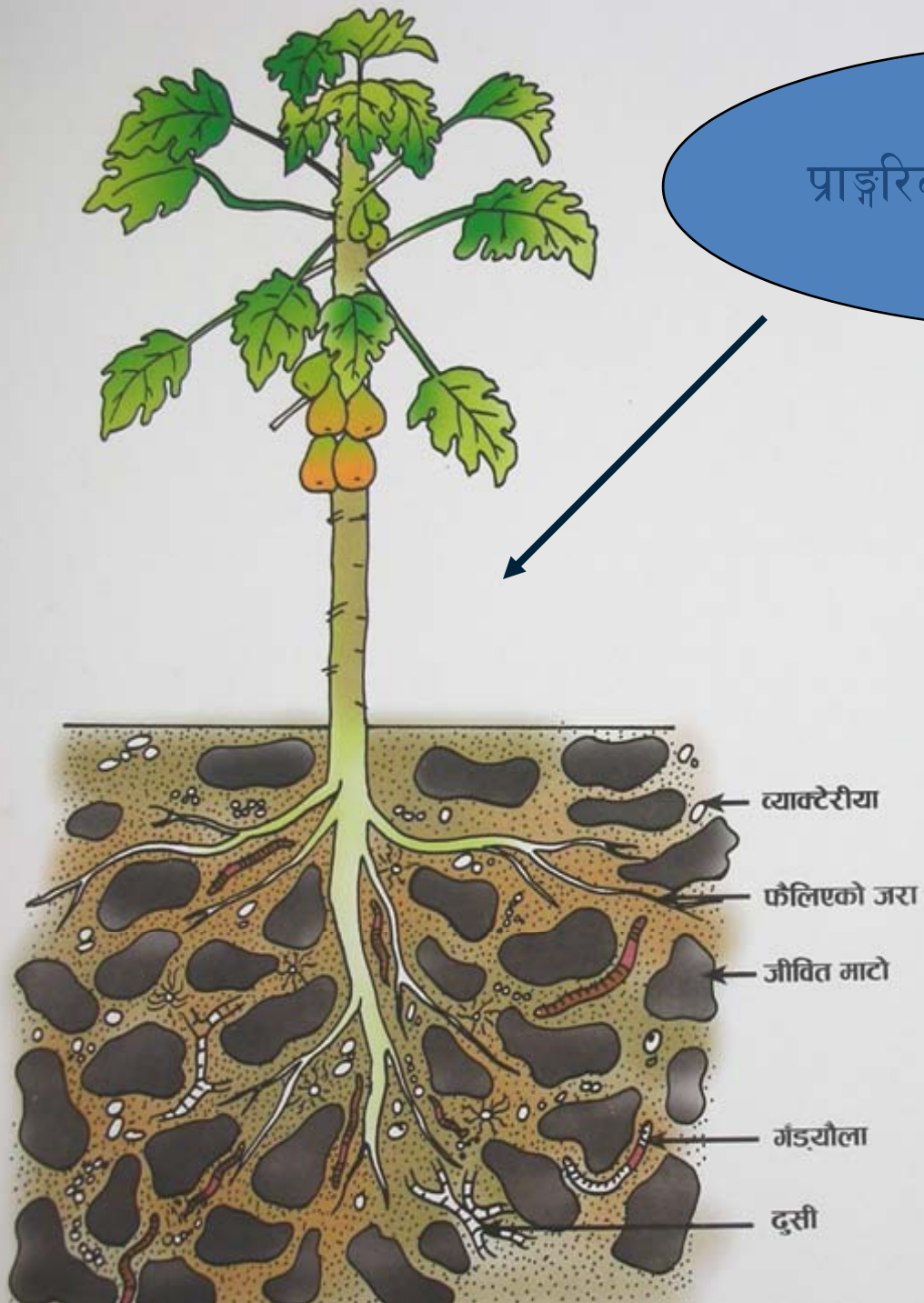
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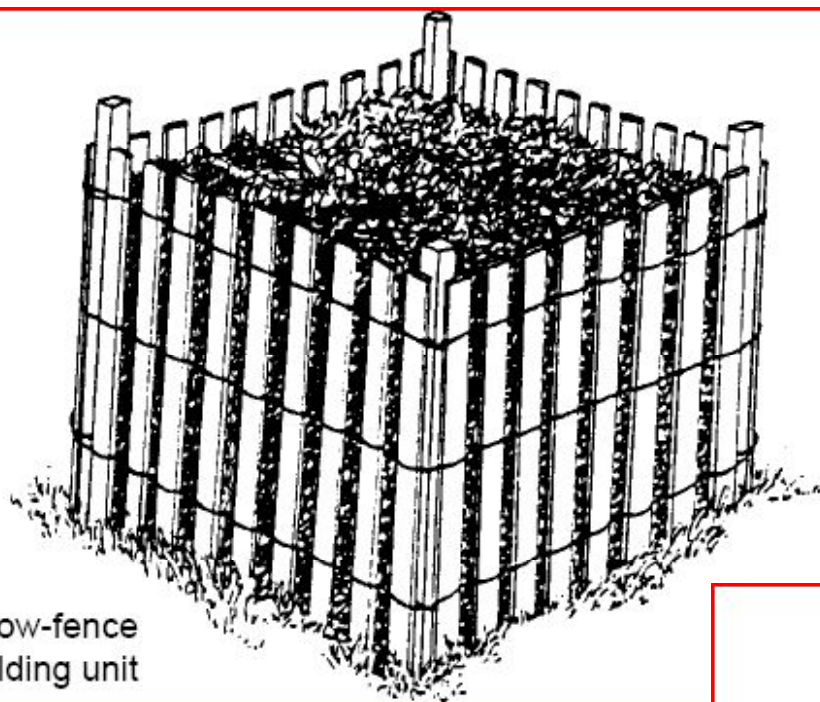


गड्यौले कम्पोष्टिङ्ग

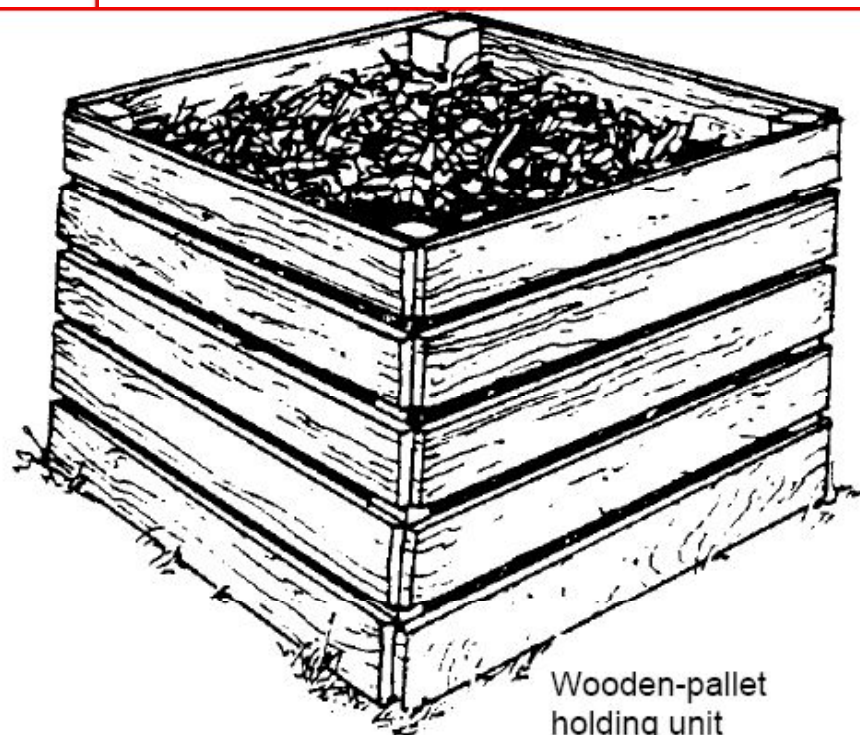


प्राङ्गरिक मल प्रयोग गरी बढेको
जीवत बिरुवा



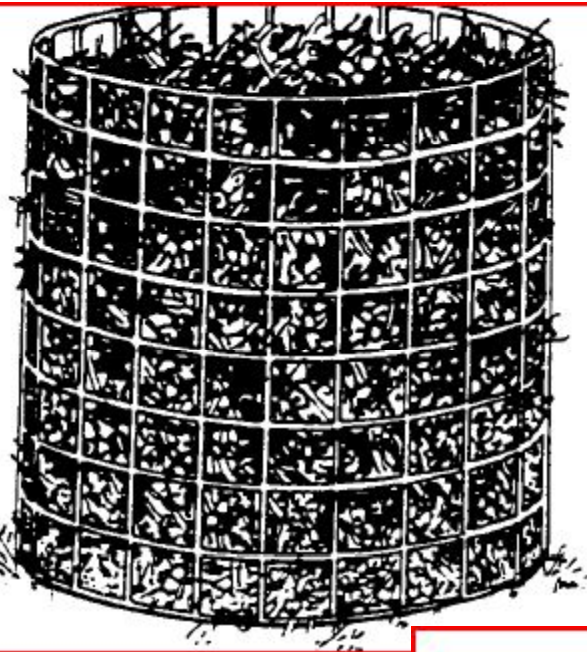


Snow-fence
holding unit

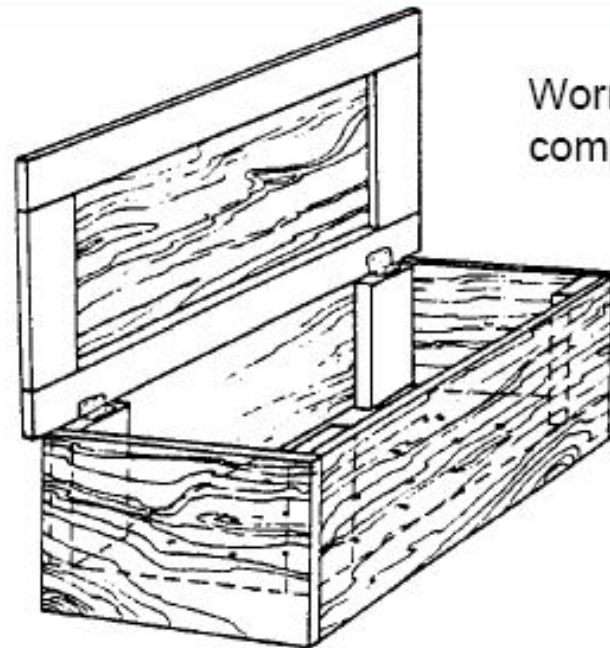


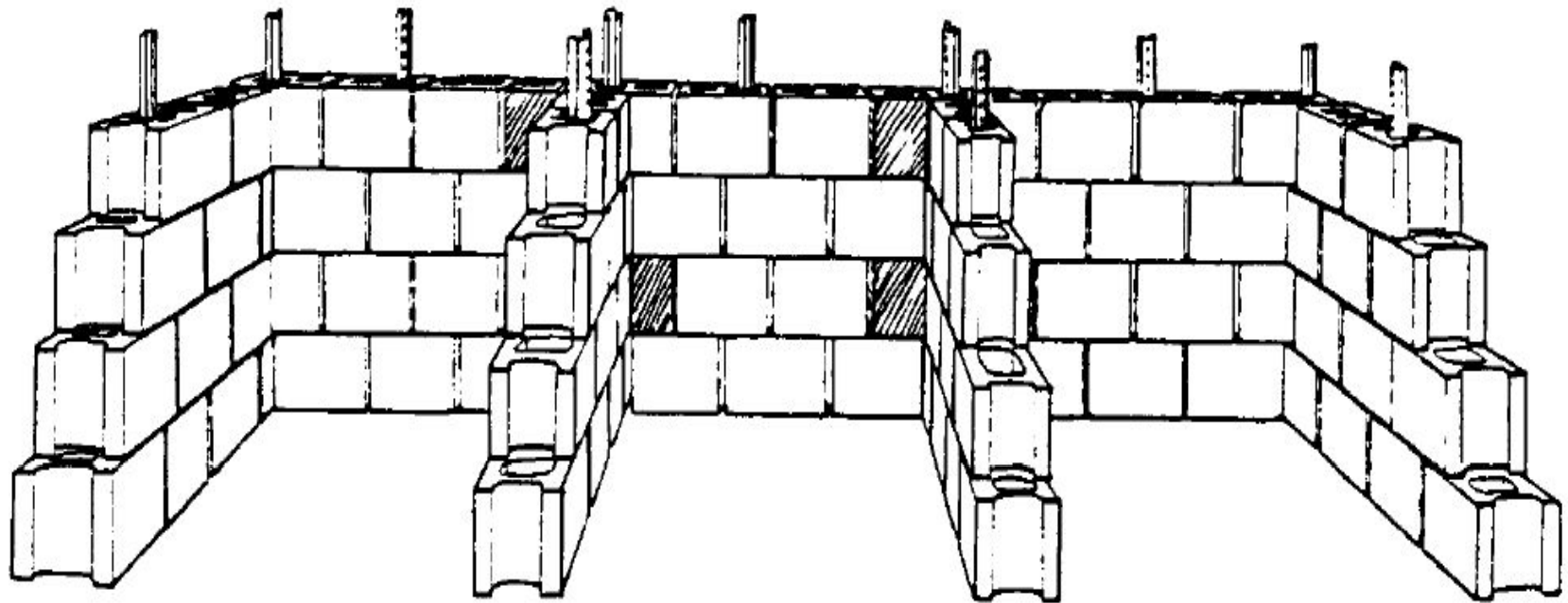
Wooden-pallet
holding unit

Wire-mesh
holding unit



Worm
composting bin





Concrete-block, three-bin turning unit

Some Initiatives

Why Community Recycling Centre

- Make recycling convenient for the public
- Information centre on SWM and recycling at the community level
- Selling of Recycled products
- KMC has some experience in CRC
- Local support in ward 21

Ward 21 Community Recycling Centre

- Located in Lagan Chowk
- Buys all recyclable materials
- Sells compost
- Sustainability
 - Operated by Private Scrap dealer
 - Monitoring by local communities
 - Phone and newspaper service

Household Compost Bins in Ward 21

- 500 households
- 2-Day Intensive Training
- 1-day Refresher Training
- Weekly Monitoring for six months
- “*Suiro*” for collecting plastics in 200 HHs
- Implemented by local community groups



System of Plastic Collection in Kirtipur



Household Bin Composting



- Plastic bins 60 to 100 litre capacity
- Two chambers separated by grill
- KMC has sold about 2000 bins at Rs. 750 per bin (including necessary equipment) – 30 % subsidy
- Designed to be
 - Attractive
 - Enough for one family
 - Light weight
 - Durable
 - Natural aeration

Community/Municipalities Composting

- Few municipalities and some NGOs are experimenting
 - Pile composting in Bhaktapur & Kathmandu
 - Compost sheds in Butwal Siddhartha nagar
 - Compost chamber in Kathmandu & Thimi
 - Vermi Composting in Kathmandu
- Initial cost is often provided by some project, but sustaining the effort is a challenge
- Marketing of compost is a challenging

प्रयत्न नेपालका प्रयासहरु



अहिलेको स्थिति

- “Waste needs to be dumped somewhere”
- “It’s the municipality’s or government’s job”
- “Out of Sight out of mind”
- Sweep & Dump

