

Science Behind Traditional Knowledge for Disaster Risk Reduction, Climate Change Adaptation and Food Security

Professor M Alimullah Miyan

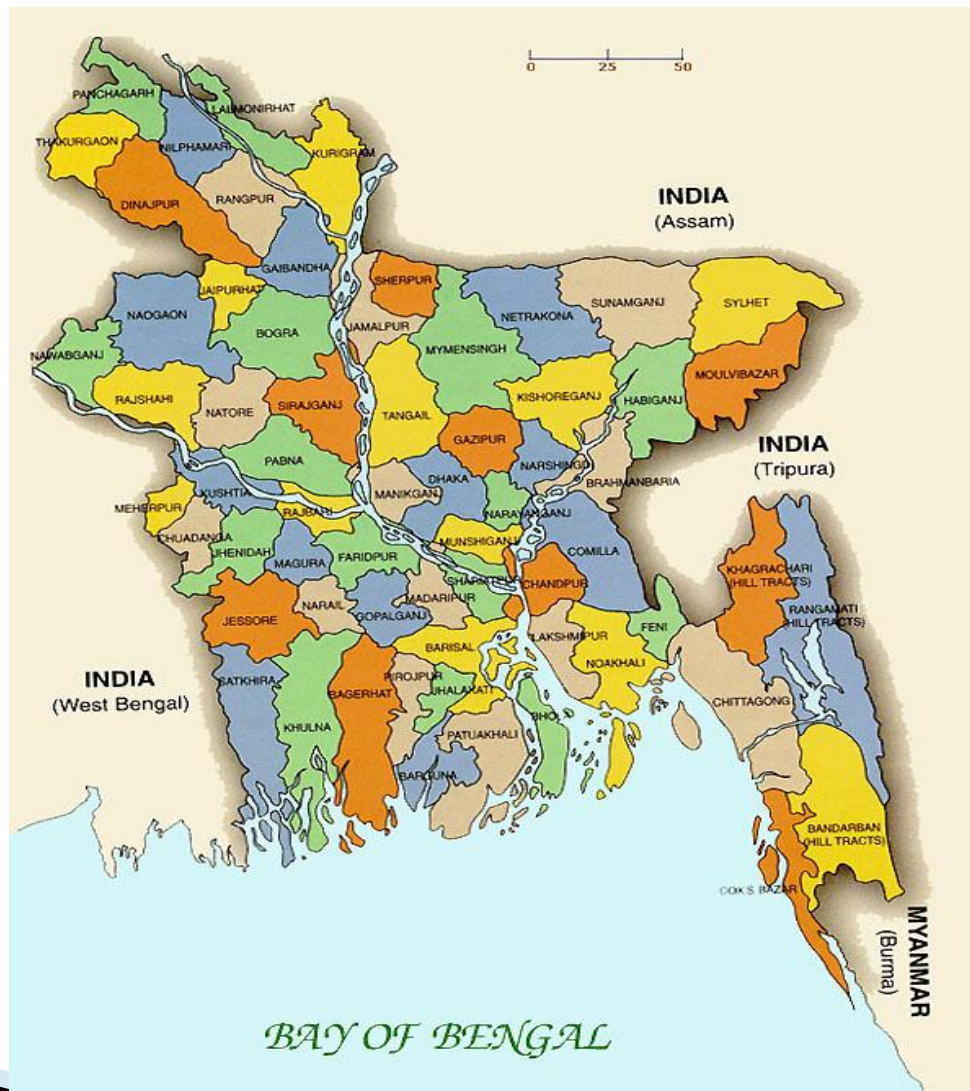
RCE Greater Dhaka, Bangladesh

Centre for Environmental Culture (CGEC)

A Multidisciplinary Project to Evaluate Traditional & Local Knowledge used by the People of GBM Basin to Manage Resources for

- **Conserving Biodiversity**
 - **Managing Landscape**
 - **Home-centered Waste Recycling**
 - **Grey Water Use**
 - **Combating Climate Change Effects**
 - **Disaster Risk Reduction**
 - **Youth Engagement**
 - **Healthy Lifestyle**
 - &**
 - **Food Security**

Map of Bangladesh



**Very Fertile Land
with 165 million
people on 147,540
km² area only**

Catchment Area of GBM Basin



Bangladesh receives water with huge organic matters from 1,721,300 km² Catchment Area of GBM River Systems

People of Bangladesh Used Traditional Practices on

- ❖ Resource Management
- ❖ Farming & Cropping Culture
- ❖ Waste Recycling, Surface & Grey Water Use, Health & Nutrition
- ❖ Uses of Medicinal Plants & Animal Extracts
- ❖ Traditional Defense Mechanisms Against Natural & Climate Extreme Disasters
- ❖ Choosing the Right Crops & Other Agricultural Practices etc.



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 **RCE Greater Dhaka**



IUBAT—International University of Business Agriculture and Technology
Founded 1991 By Md. Alimullah Miyan

An Environment Designed For Learning

Compilation of Traditional Wisdoms

- ❖ Many Traditional Wisdoms & Practices were Recorded by Khona in 9th Century, Known as **“Khonar Bachan”**
- ❖ A Part of it Collected by Dr Dinesh Chandra Sen & Compiled in **“Maimansingha Gitika”** (1923)
- ❖ **Purbababga Gitika** (1926) by Dr DC Sen
- ❖ Some are Social Ritual & Folklore
- ❖ Some are Religious Culture.

Project Conceptualization

- ❖ Multidisciplinary Project Conceptualized to Reflect on the Importance of the Traditional Knowledge on Social, Economical & Environmental Sustainability towards Climate Change Adaptation, DRR & Food Security
- ❖ Project has been **Accelerated & Encouraged** by Colleagues of United Nations University (UNU-IAS)
- ❖ Support from the IUBAT University & APN Global Change Research Program

Project Scope and Outcome

- ❖ Investigation of the scientific values of the traditional knowledge in the light of Education for Sustainable Development to contribute to solution of manifold problems like Climate Extremes, Disasters, Global Warming & Food security etc.
- ❖ Project outcome is expected to create confidence on the scientific values of the traditions by improving the scientific & technical capabilities of the local, national & regional vulnerable groups.

Recognition

❖ IUBAT University & RCE Greater Dhaka received **National Environmental Award** from **Government of Bangladesh** in World Environment Day 2014 for its outstanding contribution in Research & Awareness with this program “**Science behind Tradition**” under the theme: *Raise Your Voice, Not the Sea Level.*

Publications

❖ A: Presented and Published

- ❖ **RCE Greater Dhaka: Biodiversity Conservation**, Chapter 5; *In* Innovation in Local and Global Learning Systems for Sustainability: Traditional Knowledge and Biodiversity- Learning Contributions of the Regional Centres of Expertise on Education for Sustainable Development; United Nations University Institute of Advance Studies (UNU-IAS) Yokohama, Japan e-ISBN: 978-92-808-4540-2; United Nations University-2013
- ❖ **Traditional Practices For Solid Waste Recycling In Rural Homes —A Lesson for Education for Sustainable Development** Presented in the International Symposium on “A Decade of Regional Centres of Expertise on ESD: Reflections and Advances in Asia-Pacific”, 7th Asia Pacific RCE Regional Conference held at University Seines Malaysia, Penang, Malaysia from 25-29th August 2014
- ❖ **Superiority of Organic Agriculture over Conventional Agriculture** Presented in the International WWOOF Conference held on 17-20 October 2014 at Fethiye, Turkey

❖ **B: Being Published**

❖ **Natural and Traditional Defense Mechanisms to Reduce Climate Risks in Coastal Zones of Bangladesh,** Weather and

Climate Extreme Journal of Elsevier (WACE), WACE-D-13-00081

❖ **Climate Extremes and Challenges to Infrastructure Development in Coastal Cities in Bangladesh**

WACE-D-13-00082

❖ **Impacts of Floods on Forest Trees and their Coping Strategies in Bangladesh**

WACE-D-13-00078

C: Proposals Accepted and Submitted

- ❖ **Traditional Floodplain Management of the Ganges, Brahmaputra & Meghna Basin: Illustration of Unique Landscape Management Practices for Climate Change Adaptation,** International Conference on Climate Change in relation to Water and Environment I3CWE-2015 12-14 February, 2015, Dhaka University of Engineering and Technology (DUET), Gazipur, Bangladesh
- ❖ **Project proposal to APN under 2014 CAPaBLE Call on Capacity Building for Sustainable Landscape Management in Bangladesh**

Landscape: Undulation and Traditional Flood-Plain Management



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Exotic Varieties Damaging Ecosystems

Lack of Knowledge of Habitat Science



Eucalyptus

- ✓ No undergrowth
- ✓ Don't initiate rainfall or condensation
- ✓ Leaves don't decompose to humus
- ✓ Dry branches promote bushfire
- ✓ Birds are invisible



Acacia auriculiformis

Acacia sp



Let's say big **"NO"** to these exotic varieties
BUT plant local varieties





**Drought is a Silent Killer !
the next BIGGEST THREAT !!**

Cultivation System Non-adaptive to Climate Change Intensifying it!



**HYV Crops need lots of Groundwater
1 kg Rice needs 4000 kg Water
Groundwater is getting lowered day by day
Monoculture System Damages Crop Diversity**

Traditional Knowledge to Face Drought

- ❖ Local people has idea of cyclic recurrence of drought
- ❖ Drought tolerance crop cultivation; i.e., Aus Rice, Millets,
- ❖ Sweet potato, Maize, Pumpkin, Pulses, Mustard, Radish
- ❖ Rural villages “ One home, One pond” is an excellent practice



এক বাড়ি এক পুকুর
শতক জাতের ফসল তাতে
উঠান ভরা লাউ-কুমড়া
শিম, শসা আর দুধ কচুতে
গাছে গাছে আম কাঁঠাল
নারকেল সুপারি আমড়া তাল, পুকুর ভরা
মাছ আর গোয়াল ভরা গরু
দুধ-ভাতে পরান জুড়ায় পানির অভাব কোথা
?

Natural Disasters & Traditional Wisdoms

People facing natural disasters for thousands of years & they have rich traditional knowledge & experience. Modern world overlooked these but it is very scientific



No alternatives to face
Tornadoes but
Bamboos

Traditional Homes fenced with Bamboo,
Coconut, and Areca nut as windbreaks

Coconut withstands Cyclone
Aila but Albizia richardiana
was uprooted & damaged
many homes

Weaving bird's nest
indicates wind
direction



Be Safe in Disaster!!
Right Plant in Right Habitat

Food Security by Traditional Knowledge & Organic Farming other than Cereal Crops



Potato

Sweet Potato →



Jack Fruit



Pumpkin

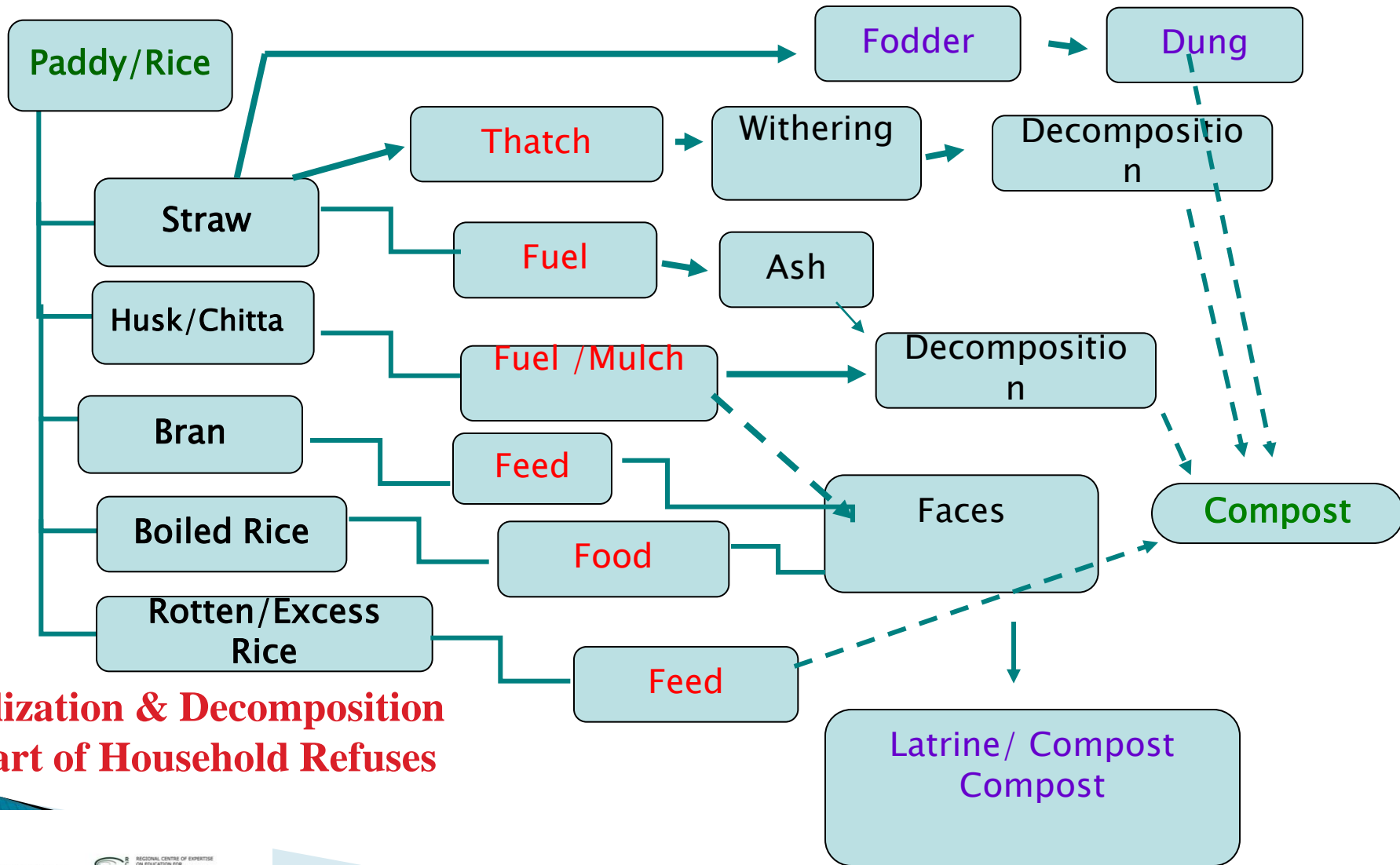


Musk Melon

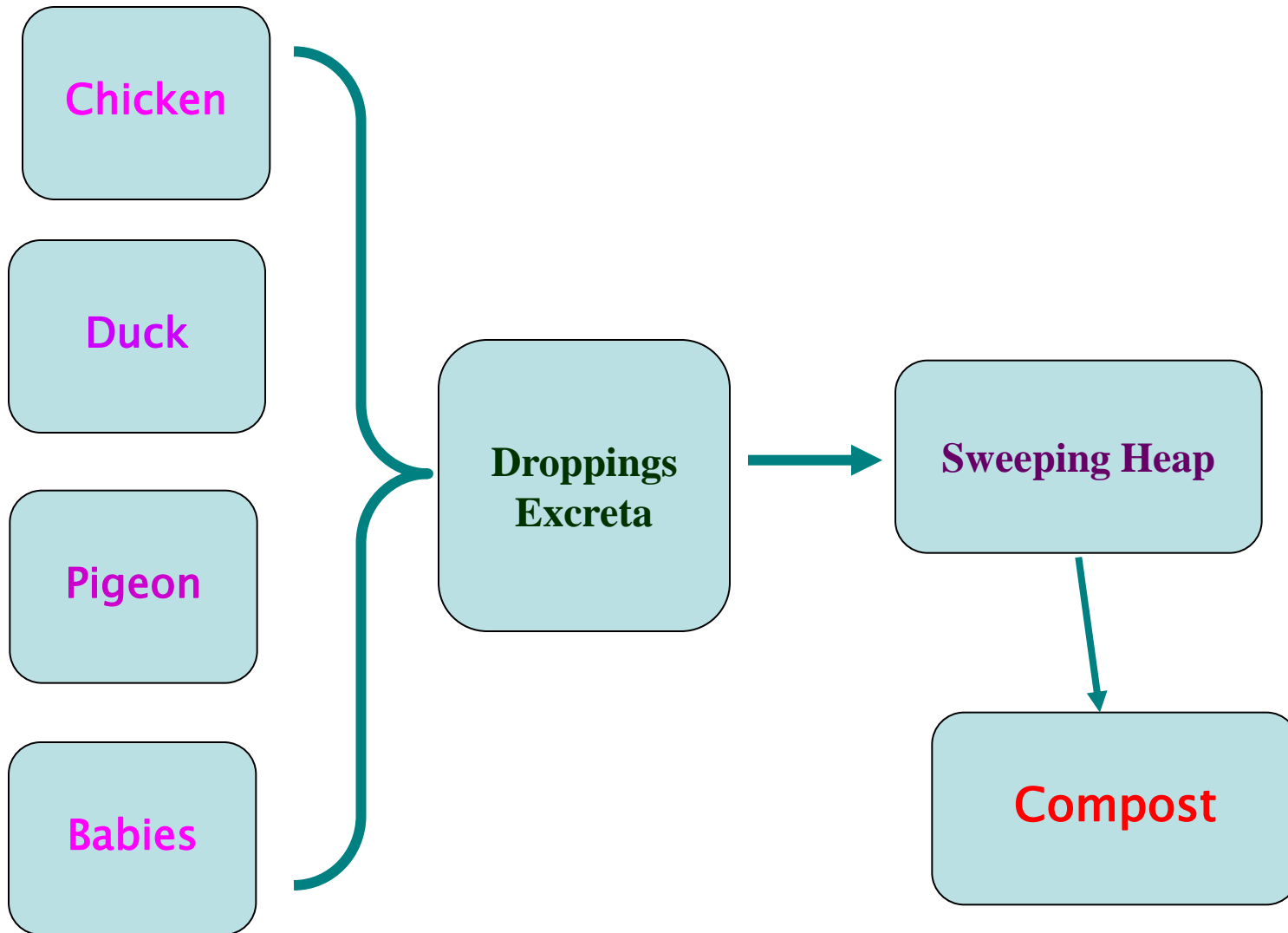


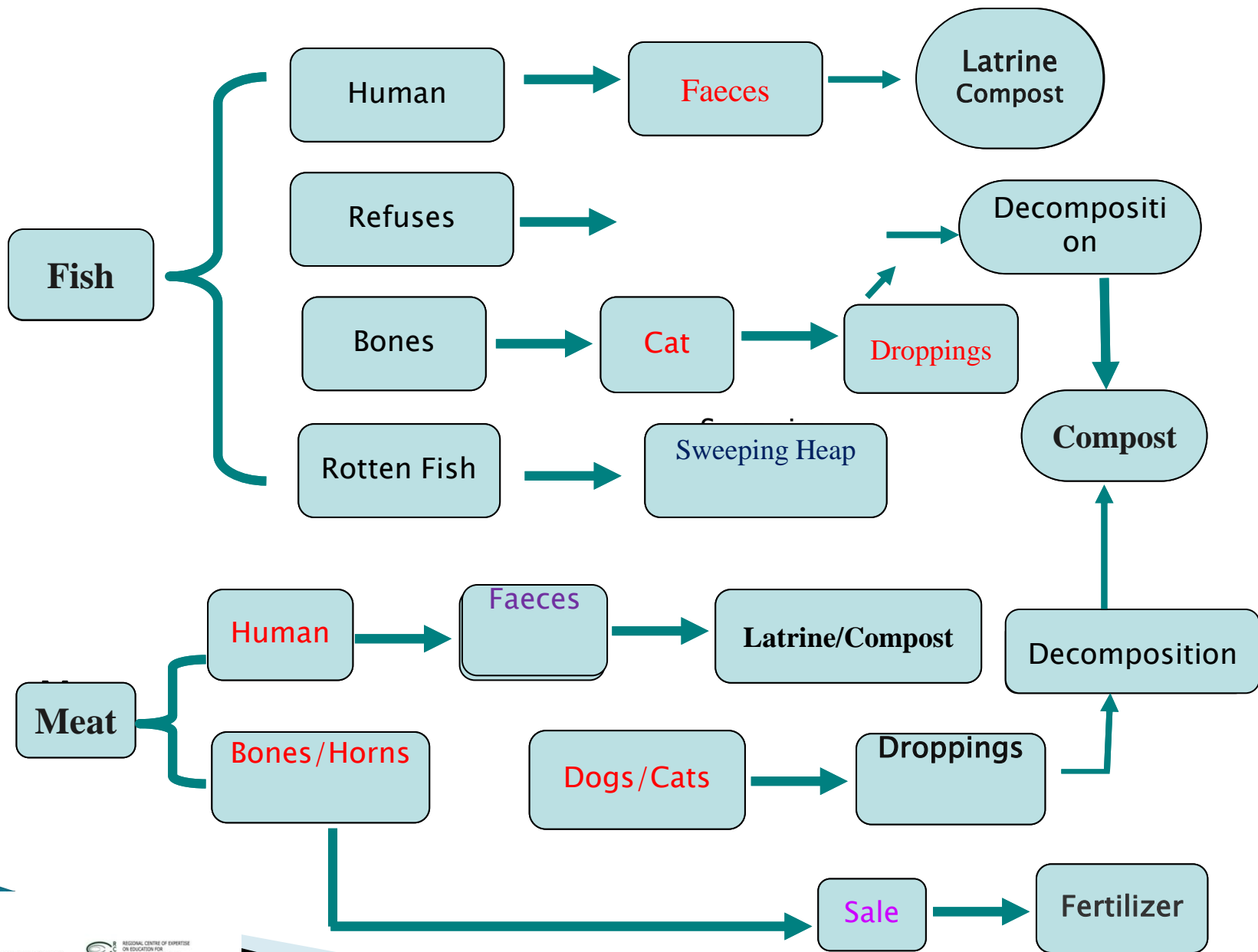
Wonder in Waste Management: Traditional Rural Waste Management !

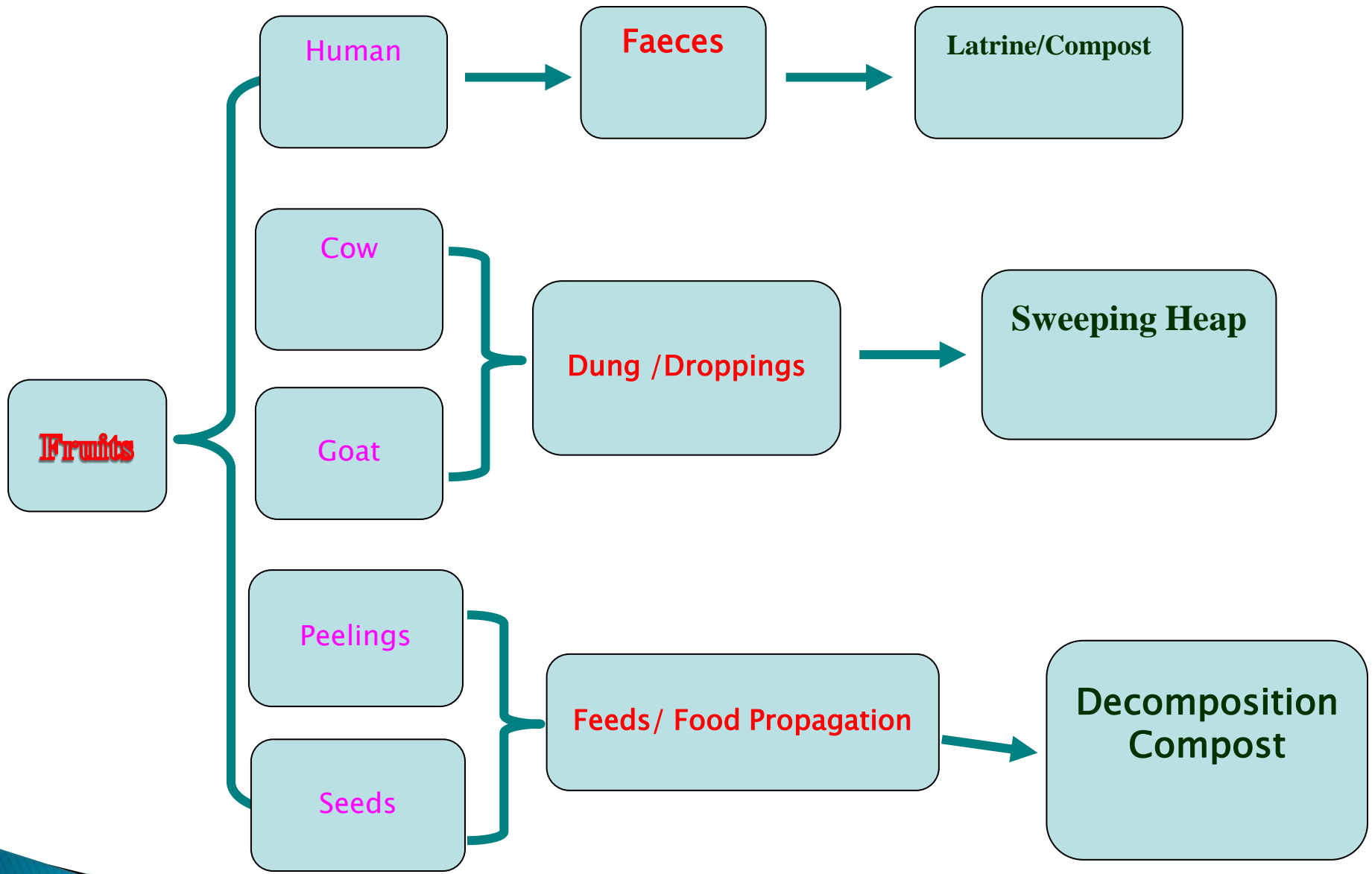
Though it is difficult to manage waste in City area but Rural people are doing it for years with success. 100 % recycling!!!

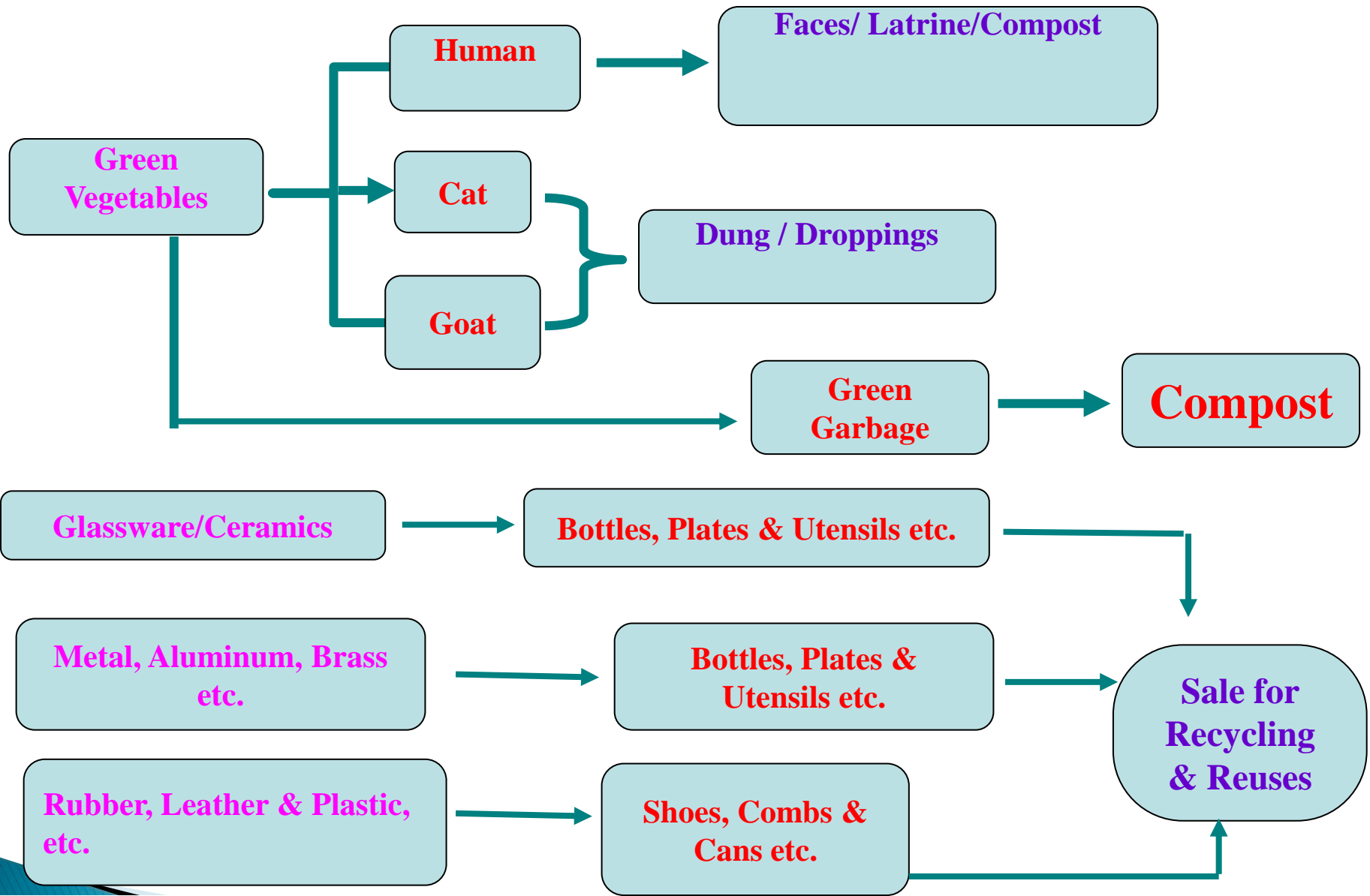


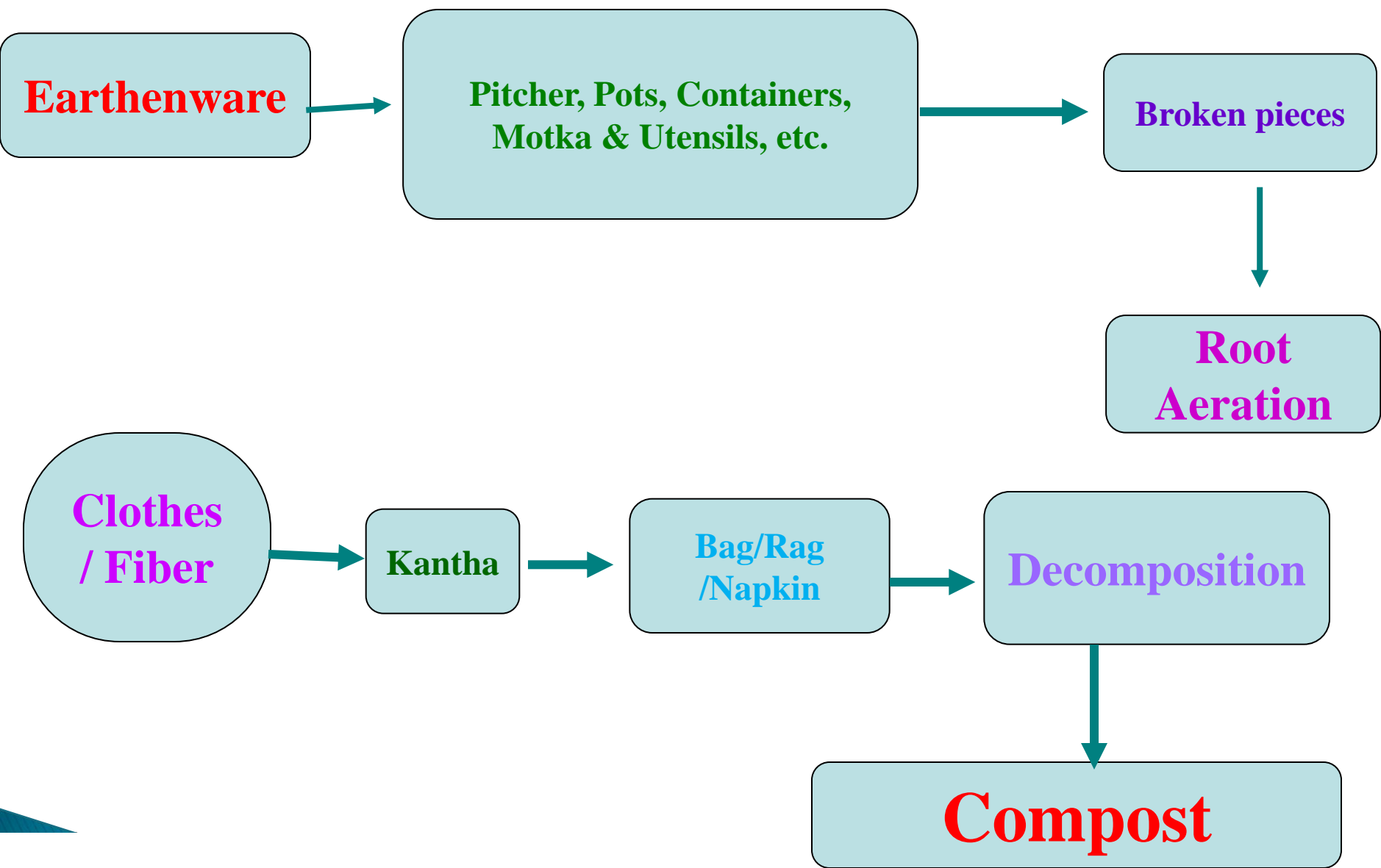
**Utilization & Decomposition
Chart of Household Refuses**













Thank You



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