WASH Alliance Environmental Sustainability training in Kenya

Presentation on methods to limit influence of sanitation projects on the water quality and/or environment by Practical Action

PRACTICAL ACTION
Technology challenging poverty

Methods to limit the influence of sanitation project on the water quality and/or environment:

They include the follow:

- Appropriate effluent disposal sites (Waste water Treatment Plants) i.e. those managed by WSPs in urban areas
- Ensuring motorized exhauster and manual pit emptiers dispose off at these designated treatment sites to curb environmental and surface water pollution including public health safety.
- Environment friendly sanitation technologies promoted which pose no threat to underground water resources (pit latrines if used to be lined from bottom, septic tanks properly constructed and construction of leach pit (double pit) in peri-urban areas.

Methods to limit the influence of sanitation project on the water quality and/or environment:

- Participatory Technology Designs sessions used with locals to arrive at appropriate options (context specific)
- Waste water re-use encouraged in water scarce low income areas for cleaning toilets, grey water re-use in kitchen gardening etc.
- House roof catchment rain water harvesting promoted to complement water scarcity in high dense low income areas.
- Shallow wells /springs protection to conserve water quality

Water Access Methods and Roof Water Harvesting in LIAs

Methods to limit the influence of sanitation project on the water quality and/or environment:

- Facilitation of proper solid waste management initiatives to avoid clogging of surface water drains, polluting air environment (climate change especially by burning waste), excess waste going to dumpsites by diversion strategies via material recovery and recycling (paper, plastics and bio-degradable) and composting of organic waste to produce organic fertilizer.

Feacal sludge management interventions

- Mobilised, organised and trained 37 pit emptiers for them to be recognised in feacal sludge management in low income areas benefiting 224,743 in Nakuru town and this has can be scaled up.
- Mobilised to form an association.
- Registered and have constitution.
- Linkages with key stakeholders (Nakuru Water and Sanitation Services Company, County government department of health and National Environment Management Authority)
- Self esteem improvement through branding , Sludge handling safety gear and manual pump - gulper.
- Reduced pollution of water sources as they now dispose feacal waste safely.
- NAWASSCO Ltd has bought two decentralized FSM infrastructure to be located at designated point in the informal settlements.

FEACAL SLUDGE MANAGEMENT IN URBAN AREAS

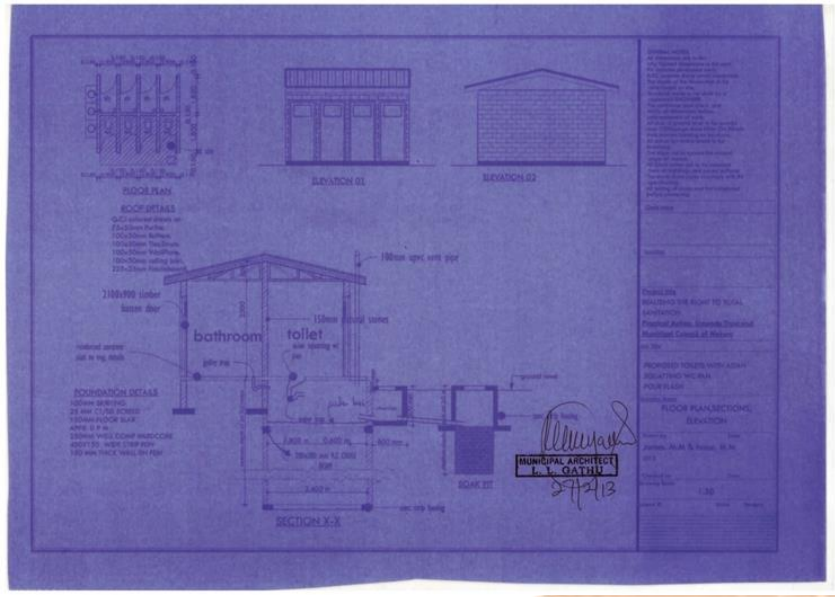
Bio sanitation, carbonation for briquette making and co-composting:

- Feacal matter is used in the bio-digester to produce bio-gas. A photograph of bio-centre constructed in Nakuru by Practical Action and Umande Trust is in next page.
- Use of feacal matter for briquette making after carbonisation to kill pathogens.
- The composting of organic waste from household which is then mixed with composted feacal waste ensures resource recovery.

Bio-centre constructed in Nakuru County for a youth group c

Environmental & Public Health Risks: Poor Sanitation

Participatory Sanitation Technology Designing Process

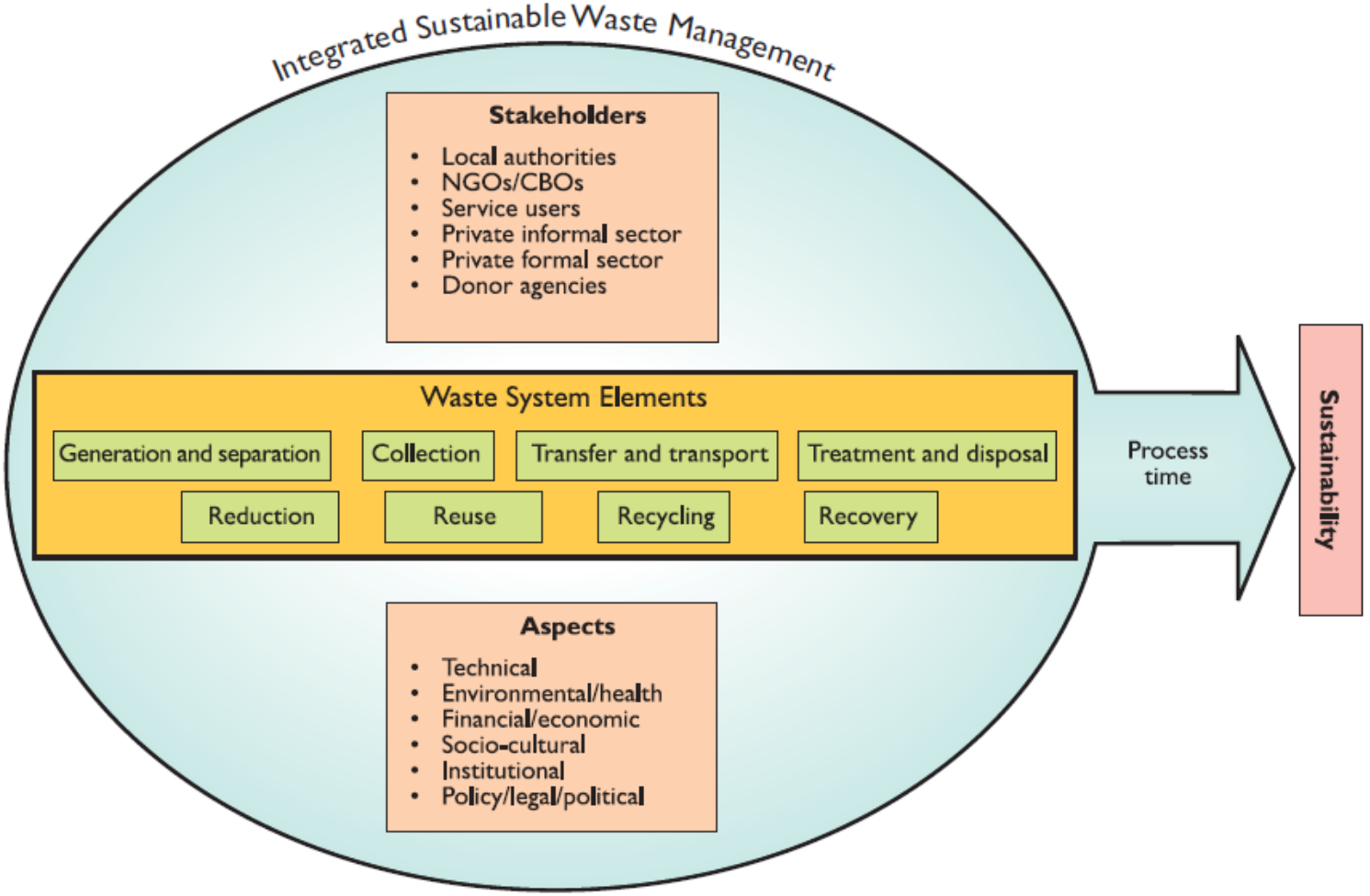


UMANDE TRUST
"New Dawn: Nascent Start"

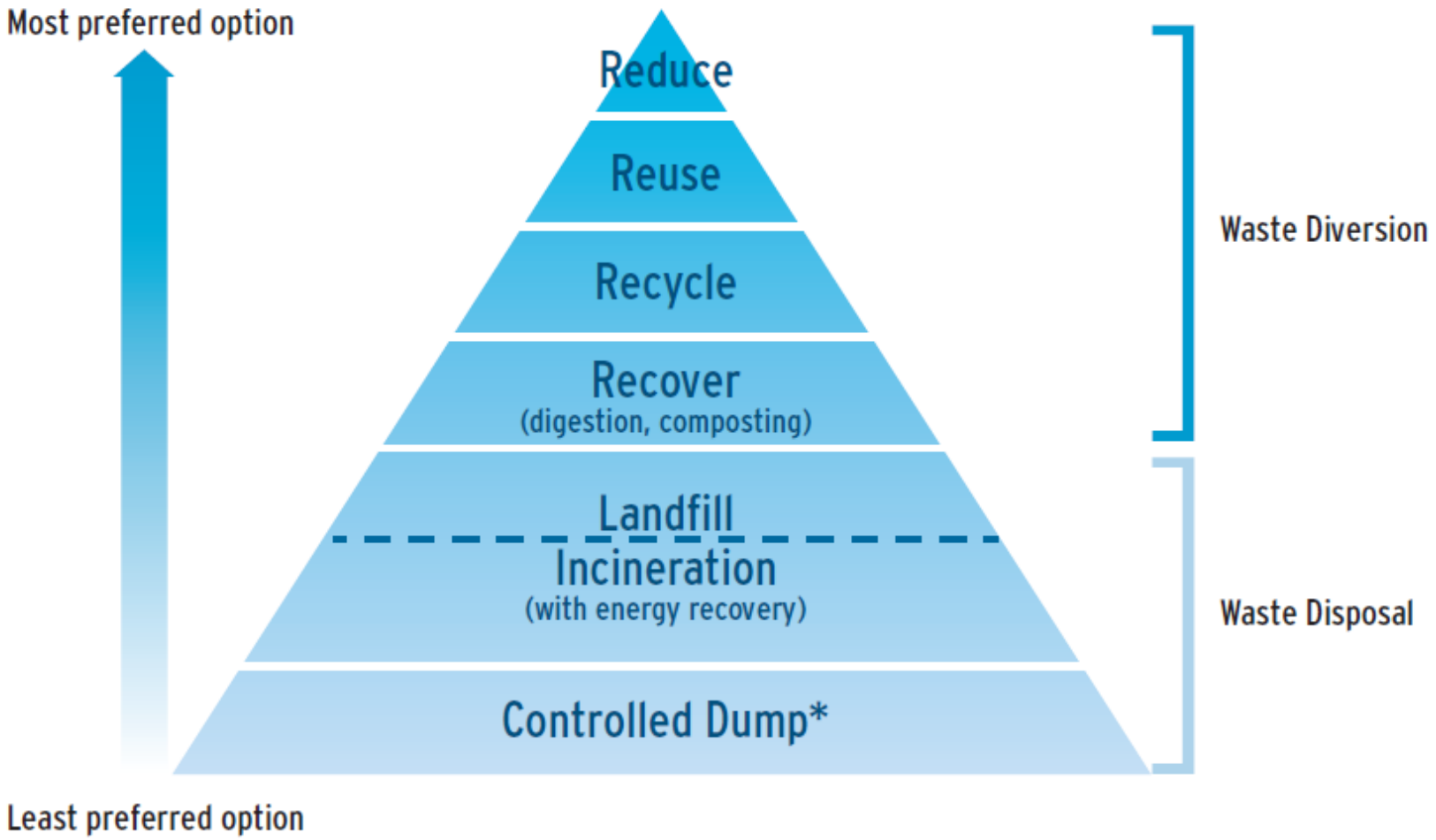
Solid waste management

- Decentralized SWM service delivery model in Nakuru town got Nakuru County Government's approval for scale up in major urban centers (Molo, Njoro, Elburgon, Naivasha and Gilgil) in the entire County.
- 36 urban waste collection zones demarcated in all Nakuru major urban areas.
- Waste enterprises have an established association which support them to lobby for location of zones/licensing by the County government department of environment.

Integrated Sustainable Waste Management (ISWM) Framework



Waste disposal hierarchy options (Source: Hoornweg and Bhada-Tata, 2012, p. 27).



*As a minimum, waste should be disposed at a "controlled dump," which includes site selection, controlled access, and where practical, compaction of waste. Incineration requires a complimentary sanitary landfill, as bottom ash, non-combustibles and by-passed waste needs to be landfilled.

Recycling, reuse and value addition for income

Catchment protection

- Communities are trained on good sanitation practices and solid waste management practices.
- The water abstraction from the river is managed through water users association to ensure down stream users also have their share and Water Resource Management Authority (WRMA) is also involved as water is key in sanitation issues.
- Water catchment protection through use of renewable energy and also other source of energy instead of firewood.
- Community encouraged to construct earth dams and also water pans in strategic areas for water livestock as this also replenish underground water.
- School children will be trained on conservation. These include tree planting, horticulture etc.
- Community training on soil conservation and rehabilitation of existing abandoned quarries.

Lessons Learnt

- Sustainable Solid waste management best succeeds with public private partnerships.
- There are hidden treasures in waste (waste is gold).
- Job creations for the local residents (waste collection services, material recovery for value addition and marketing)
- Policy framework is vital to regulate ISWM interventions
- That county governments are best taking the regulatory role and decentralize service delivery to private actors
- Promoting waste separation from the source improves material recovery and their quality.
- **Sustainability:** Business approach applied by SWEs, capacity development by partners, conducive policy environment and residents compliance ensures sustainability.
- Established community structures ensures equitable use of resources.