Waste Management that Benefits a Community
Introduction

My name is Christopher Muriithi, I am 58 years old, retired outdoor leader and mountain guide. Certified and accredited Mediator. Passionate environmentalist specialized in community mobilization, awareness, sensitization and education in sustainable community led decentralized solid waste management.

In 2014 I Started an initiative to educate, to raise awareness and to promote behavior change towards proper waste management in Embulbul village in Ngong, Kajiado county, Kenya.

In 4 years we have achieved 85% waste recovery, separation, collection and disposal from less than 10% on the same in 2014.

I introduced waste resource recovery at source in 2018 and also established a simple recycling center where I train children, individuals and private waste collectors on effective waste management.
Map and location

- Embulbul village is in Oloolua Ward, Ngong division, Kajiado north Sub county in Kajiado county Kenya.
- It is situated 21 km south of Nairobi the capital city of Kenya.
- The village and neighborhood among others is called ‘the bedroom of Nairobi’ and has an estimated population of 17,000 (2009 census)
Outline

• The waste situation in Embulbul
• Main characteristics, goals of the initiative to reduce, reuse and recycle waste
• Challenges faced and opportunities grabbed
• Interesting facts and figures of the impact of the initiative
1.0 The Waste Situation In Embulbul

- Breeding sites for rodents, mosquitoes, flies etc
- Communicable diseases
1.0 The Waste Situation In Embulbul

- Effects on Vulnerable groups
1.0 The Waste Situation In Embulbul

➢ Social and cultural taboos
1.0 The Waste Situation In Embulbul

➢ Backstreet dumping at night
1.0 The Waste Situation In Embulbul

- Improper waste management practices
- Irresponsible behavior and habits
1.0 The Waste Situation In Embulbul

- Blocked drainages
2.0 Main Characteristics And Goals To Reduce, Re-use And Recycle Waste

- Community mobilization
- Community ownership on matters of common interest
2.0 Main Characteristics And Goals To Reduce, Re-use And Recycle Waste

➢ Voluntary Community cleanup exercises
2.0 Main Characteristics And Goals To Reduce, Re-use And Recycle Waste

➢ Street to street awareness and sensitization campaigns
2.0 Main Characteristics And Goals To Reduce, Re-use And Recycle Waste

- Simple effective and affordable waste management strategies
3.0 Challenges Faced And Opportunities Grabbed

- Poor compliance and law enforcement
3.0 Challenges Faced And Opportunities Grabbed

➢ Separation and mix up on transportation
3.0 Challenges Faced And Opportunities Grabbed

- Simple effective recycling facility
- Recovery of resources from waste
3.0 Challenges Faced And Opportunities Grabbed

➢ House to house collection of resources
3.0 Challenges Faced And Opportunities Grabbed

- Employment opportunities
4.0 Interesting Facts, Figures And Impact of The Initiative

➢ Adopt A Street strategy for enhanced public awareness and participation
4.0 Interesting Facts, Figures And Impact of The Initiative

➢ Towards proper waste handling at transfer stations
4.0 Interesting Facts, Figures And Impact of The Initiative

Before

➤ Bottom up approach on transforming conflicts for community benefits

After
4.0 Interesting Facts, Figures And Impact of The Initiative

- Initiative Approval by County Government
4.0 Interesting Facts, Figures And Impact of The Initiative

- Partnership with county government in community led organized garbage collection
4.0 Interesting Facts, Figures And Impact of The Initiative

October 2014

- 90% Recovered
- 10% Not Recovered

October 2018

- 85% Recovered
- 15% Not Recovered

This graph represents solid waste generated from **450 households**, each with an **average of 5 people** each generating **150 grams per day**, which translates to **337.5 kgs per day**, cumulatively **2362.5 kgs per week**.
4.0 Interesting Facts, Figures And Impact of The Initiative

- Green & Food Waste (ORGANIC)
- Plastic Materials (NON-DEGRADABLE)

Year: 2014 October
- 75%
- 25%

Year: 2018 October
- 60%
- 40%
Solid waste management polices, guidelines and regulations

- Kenya has addressed waste issues:
- Constitution of Kenya 2010 Article 42
- Environmental Policy 2013
- National Solid Waste Management Strategy 2015
- EMCA (Environmental Management Coordination Act) 2016
- National Climate Change Action Plan 2018
- Kenya Vision 2030
Conclusion

➢ Sustained Education and Advocacy
Conclusion

- Engaging leaders in government
- Solid waste management authority
Waste Management that Benefits a Community

Introduction

We are a registered community organization based in Embulbul Ngong, Kajiado north Sub County, Kajiado County, working in Environmental Conservation and Waste Management; we mobilize communities, sensitize, create awareness and help them establish sustainable environment conservation practices and waste management systems.

Our mission is to help build capacity to individuals, groups and communities with simple, practical and effective ways to protect and conserve the environment, planting and growing trees, riparian repairs, community participatory forest management and to manage waste from source, how to separate, segregate, 3 Rs, transportation, and disposal and to demystify the social and cultural taboos associated with it.

Embulbul Waste Situation

According to our research, the average senior resident in Embulbul village generates about 150-250 grams of waste per day. The generation of solid waste is estimated to grow rapidly annually due to the projected rise in population caused by increased residential housing developments.

The magnitude of the problem is likely to grow even larger and immediate steps should be taken. While the quantity of solid waste generated by the community is increasing, the composition of waste is becoming more and more diversified, with increasing use of packaging materials made of both paper and plastic.

Twenty years ago, the composition of solid waste generated by the residents was characterized by one-fifth non-biodegradable waste and four-fifths biodegradable waste. At present, this ratio is about to reverse; today, a mere 60 per-cent of all solid waste is biodegradable while 40 percent is non-biodegradable.
Poor Compliance

Several reasons are given in order to explain the poor status of solid waste management programmes in Embulbul, Ngong and other urban centers in Kajiado County. Lack of financial and human resources and organizational inefficiency within the relevant departments from the previous environment departments and municipal councils.

Transportation arrangements are generally inadequate due to the unavailability of proper vehicles as well as the low productivity of the personnel. There are also policy gaps that needed to be addressed,

Environmental Degradation, Human Health, and Waste

Improper handling of solid waste and indiscriminate disposal in open spaces, road reserves, and drainage ways gave rise to numerous potential risks to the environment and to human health.

Direct health risks mainly concern those working in the field without using proper gloves, uniforms, and a high percentage of waste workers and individuals who live near or on disposal sites are infected with gastrointestinal parasites, worms, and related organisms.

For the public, the main risks to health are related to poor water, land, and air quality and many cases of typhoid are reported each week. In addition, infrequent collection of waste provides an attractive breeding ground for mosquitoes, flies and rats.

The most obvious environmental damage caused by solid waste is aesthetic, i.e. waste that litter public areas is ugly and smelly. A more serious risk is the transfer of pollution to ground water and land as well as the pollution of air from improper burning of waste.

Many waste activities generate greenhouse gases; e.g., landfills generate methane and refuse fleets are significant sources of carbon dioxide and nitrous oxide. Open burning dumpsites produce volatilized heavy metals like mercury, lead and dioxins. Uncovered dumpsites contaminate surface and ground waters.

Goals

Our goal is to have a decentralized solid waste management scheme work in Embulbul village and its environs thereby improving the local environment and offering continuous employment to the youth and women in our community.
Objectives

Solid waste management that Benefits the Poor

The Solid Waste Management initiative is striving for maximum waste recovery through reducing, reusing, recycling and composting, and aims at zero waste to be disposed in dumpsites. The long term objective thus is to reduce the environmental degradation caused by Solid Waste.

By using composting methods to manage the biodegradable Waste, we are able to;

- Minimize waste that needs to be disposed in centralized dumpsites.
- Reduce the environmental impact of disposal sites, as the bio-degradable waste fraction largely is to blame for the polluting, leachate and methane problems.
- Benefit the soil by using organic compost instead of chemical fertilizers

Furthermore, decentralized composting schemes as suggested here, have advantages to centralized schemes, as they;

- Divert biodegradable waste from the County waste stream, thus reducing, transportation cost and the environmental costs.
- Enhance environmental awareness in the community.
- Create employment in the Community
- Ensures sustainability of the project at the local level
- Are close to the residents, allowing close quality surveillance of the waste processing services and products.
- Are mostly small scale based on labour-intensive technology, and better adapted to the local socio-economic situation
- Decrease the problems caused by malfunctioning County services, when decentralized composting is combined with primary collection services
Stakeholders

Community participation in Solid Waste Management is the key to a sustainable and integrated initiative. The aim is to get as many local actors as possible to participate and actively contribute to the initiative. We have achieved a lot by establishing school eco clubs, youth and women environmental groups.

Most importantly, we want to create a feeling of ownership for the project among the residents, whose waste is managed and whose local environment is improved by the initiative.

Activities

The households are segregating the waste at source into biodegradable (wet) waste and non-biodegradable (dry) waste.

Each household is be required to have 4 gunny bags or buckets for;

- Broken glasses.
- Wet waste which is food left over’s, and all green vegetable waste.
- Dry waste which is plastic papers, plastic bottles and related materials.
- Sanitary towels and diapers

Challenges

A fundamental problem is the way of treating and relating to waste in our community both on paper and in practice. Waste is not seen as a resource that can be refined (e.g. as nutritious compost manure or energy) or recycled (e.g. into new paper and plastic), and thereby generate wealth. Instead, it is often treated as the evil leftover that needs to be eliminated.

Moreover, waste is rarely discussed as part of a cycle of production, consumption, and recovery, nor is it assessed in relation to environmental sustainability.

On the contrary, it is considered to be a process of collection and disposal.
Cultural and Social Stigma

Another problem related to waste in our community, as in many societies, is that waste is considered dirty and filthy, and those dealing with it are perceived as inferior, second class citizens.

Traditionally people working with waste in our neighborhoods and other towns in Kenya are perceived as useless and called “chokoras” scavengers and “watu wa takataka” dirty people. Hence the prevailing informal waste system also affects how people view waste.

Awareness

In order to make long term sustainable changes, the communities at the grassroots level are led to feel ownership of and commitment to all of the initiative interventions. An important aspect in order to change attitudes and behaviors is naturally to raise the public’s level of awareness, information to trigger debates about issues relating to garbage and public health maintenance.

Our weekly ‘Mazingira Safi Afya Bora’ Clean Environment for Quality Health radio programme runs on air every Thursday at our community radio station and has become an important tool in educating and interacting with the community on issues and matters of common interest.

It is important that waste is understood and discussed from the process of production, consumption and recovery.

Another objective is to remove the social stigmas and taboos surrounding waste. Instead of perceiving waste as something dirty, it should be seen as lucrative resource from which one could make a living.

By negotiating a fair pay, good working conditions, professional uniforms and working tools to the workers, we have changed the negative perceptions surrounding waste.

We have had the risk of the project being politicized by those who would want to gain political sympathies and we have reduced this as much as possible through community ownership, participation and transparency.
Interesting facts

Waste separation at source is very important before the waste is being collected. When wastes are mixed, they become contaminated and useless, hence needing more strategies and higher costs to manage.

If wastes are separated at source, they are more amendable for more effective management strategies such as reusing, recycling, and composting.

Besides, materials that are of no use to the present owner could be a resource for another person and fed back into the economy, thus reducing wastage of money and natural resources.

Sadly enough, waste separation at source is not a common concept in Kenya. In order to reduce the amount of waste into the dumping site, the best solution is to implement the solid waste management based on the waste management hierarchy that give priority to the waste reduction through 3R (reduce, reuse, recycle) program.

To achieve waste reduction target, we encourage the pursuit of zero waste as a long term goal in order to eliminate waste and pollution in the production, use, storage and recycling of materials.

Achievements:

Environment Benefit:

We have succeeded in dealing and stopping all dumpsites (11) in the village and environs. Indiscriminate dumping in the streets has reduced upon introduction of ‘Adopt a Street’ strategy. Pollution and contamination by harmful pollutants such us methane, nitrous oxide and other green gases and volatilized heavy metals has lowered in our ground water/boreholes as has been found before and after water lab results.

Community Benefit:

The streets are cleaner, the air is fresh compared to what we experienced before, value on properties has increased, we are now sure of clean food sold a long side roads, our children are playing in safe environment while cases of pollution associated diseases like typhoid, malaria and other communicable ailments have decreased according to reports from our local health center and the residents are much happier these days.
Youth and Women Benefit:

We have created job opportunities for the youth, women and unemployed in our community, who are now engaged in collection of the recyclable waste, which they sell.

County Government Benefit:

We have diverted about 40% of degradable and biodegradable waste from the County waste stream that would have to be disposed in centralized dumpsite in Ngong, thus reducing transportation cost and human resource for the County government.

Sustainability

Our initial focus is in education, to promote understanding among the community, poverty alleviation through income generating projects and sustainable Waste Management for a clean and safe Environment.

All our activities are guided by the following principals:

**Local ownership** – The methods that we apply; will ensure community ownership and problem solving at grassroots level.

**Empowerment** - We believe in empowering, the individual, and the communities in order for them to help themselves to take decisions, and make changes.

**Sustainability** – The long term social, economic, and environmental sustainability is the most important aspect of assessing the initiative.

**Strengthening of the existing structures** – We do not believe in building parallel structures, but rather in working in close cooperation with and strengthening systems and structures already set in place by the county government authorities and the communities.