

CCAC Municipal Solid Waste Initiative

“Mitigating short lived climate pollutants from the municipal solid waste sector”

11-12 March, 2013 – Vancouver, Canada

Break-out session notes

1. Collection

Summary

Participants discussed numerous challenges and actions that can be taken to improve waste collection systems and reduce open burning.

Challenges and Corresponding Actions

- **Fee generation and the enforcement of payment** is a key challenge to funding sustainable waste collection systems. Additionally, rate structures typically don't cover the full cost of providing collection systems. For example, in Accra, households pay a flat monthly fee and rates are determined based on a community's income level, which doesn't always reflect the income of the individual household. Additionally, the number of individuals living in a household is highly variable which means that fees don't always reflect household generation rates. In Cali, waste collection fees are set at the national level and do not always reflect local conditions. Action cities can take to enforce payment is to tie waste bills to electricity, water or phone bills, extended producer responsibility, punch card system (example- Accra), and providing service first in order to demonstrate the value to generators, followed by the institution of waste fees later. The level of the fee, the complementing financing system and the enforcement must be set so that the risk of illegal disposal and open burning is minimized. Also, it is important to have enough capacity in machinery, trucks, etc. and in alternative treatment of the waste. When this is in place the open burning can be reduced and the waste fees collected.
- **Encouraging and funding the collection of source-segregated organics** is a challenge to any organics management program. Additionally, a lack of awareness on how to separate and its benefits makes behaviors difficult to change. Results based financing can financially incentivize individuals or communities to source segregate by providing payment for doing so. Cleaner feedstocks then lead to higher quality compost or higher energy outputs from AD, which consequently result in higher revenue streams. Two compartment vehicles can reduce cost associated with dual stream (organics, mixed waste) collection system. However having two compaction systems in the same truck decreases the hauling capacity of the vehicle. Compartments must also be

carefully sized based on actual household generation rates of organic versus mixed waste so that one compartment does not fill up faster than the other. Stockholm suggested utilizing single compartment vehicle in high density areas where vehicles fill up more quickly and dual compartment vehicles in low density areas. When using dual compartment vehicles, the organics and mixed waste processing facilities must be co-located in order to minimize transportation costs.

- **Waste is not always a political priority**, losing out to education, security, health, etc. One action cities can take to mitigate this problem is to engage key stakeholders, most importantly the Mayors office.
- The **provision of bins** can be expensive and inhibit widespread collection of waste. One action cities can take to provide collection bins is to require private waste collectors to provide them. (note - these costs ultimately get passed onto the generator in a private collection system).
- There is a **lack of data** about how much waste is actually collected in a system and where is it actually going, especially when there is a robust informal collection sector. Participants suggested that the first step to improving a waste collection system was collecting data on the existing system including quantities, types and flows of waste.
- **Existing incentive structures are not always aligned with a city's waste diversion goals.** National law and policies must be in place in order to create the market for, and hence increase, recycling and separate handling of organics – the “playing field” must be the same for all the cities in a nation. In Cali, private haulers are incentivized to dispose maximum volumes of waste in the landfill. Also, the landfilling fees are often too low in order to create the necessary incentives for recycling. (Which means - the landfilling fees do not reflect the actual cost for the society.) Cali expressed an interest in exploring the integration of transfer stations in order to re-direct waste flows and improve recycling rates through ensuring that all the waste is collected without diversion of the valuable materias.
- **Holding private haulers accountable** for an agreed upon level of service is currently a challenge in Malaysia and Cali. Participants agreed that incorporating performance standards in contract language was essential. Vina del Mar, Stockholm and Rio all execute short-term collection contracts (5 yrs) as a way to enhance accountability.
- The **integration of informal waste collectors** is a challenge to modifying collection systems. Informal waste collectors pull high value materials out of the waste stream, minimizing the potential to offset collection costs with the sale of recyclables.
- Participants emphasized the need for **integrating waste collection and disposal systems.** Many actors are involved and it is important that

there is an overall waste management plan and strategy for the municipality/region as a whole; otherwise there is a risk of gaps and suboptimization. Also, the management of industrial waste must be addressed. This is often a subject of open burning due to lack of capacity for disposal as well as lack of enforcement.

- Rio suggested that the **media can encourage compliance** with environmental standards. Public awareness is important in order to reduce open burning and increase collection. The media plays an important role in informing the public and hence, put solid waste management higher on the political agenda.
- Different **waste to energy solutions** must be developed depending on suitability in the local context. The valuable materials for recycling is often not left when collected which is why this is an important part of the system

Participants suggested that the CCAC develop a step wise approach to developing a collection system.

Participants also encouraged the CCAC to discuss whether SLCPs from transportation systems should be addressed by the initiative. This could include route optimization, alternative fuel vehicles, and driver training programs to enhance fuel efficiency. Doing so may require the engagement of additional CCAC partners.

2. Organics management

Summary

Organics diversion and processing discussion that focused on identification of key considerations important to development of city action planning process. The discussion began with an overview from each participant describing their interests in organics diversion / processing projects. A common theme was interest in reducing waste going to landfills and to reduce GHG emissions from the sector.

Challenges/Barriers

- Few examples of successful projects globally, World Bank focused on cataloging of successful projects as a tool for policy makers.
- Australia has a pretty high level of residential collection but still only 50% of total organics after many years of education and training.
- Identification of quantity and kind of waste available to a project, and challenge in quantification of cost of waste treatment alternatives.

- Markets for compost / fertilizers are difficult to identify and develop and end-products of waste processing vary by feed-stock and processing type.
- Electricity markets - where alternative cost of power is low (as in countries where hydro is prevalent) AD energy projects are often not financially viable.

Lessons learned/ information sharing

- Some commonalities to successful projects - horticultural compost and Ag have higher rates of success.
- Banning organics and increasing tip fees can be effective mechanism to encourage development of alternative treatment projects (case of Europe/Austria)
- Identification of uniform and reliable waste streams (market waste) are critical to development of viable projects.
- Organics diversion/ management is a good strategy for conservation of landfill air space, focus on this in Canada.
- NYC is currently developing tender (RFP) for alternative treatment of organics waste management. that excludes waste-to-energy (incineration).
- Stockholm decided to focus on food waste (waste as a resource) as a strategy for generation of biogas for transportation and electricity generation.
- Need for scalable approaches that consider local context, low tech systems have worked well in India that provide local small scale energy (market lighting)
- Penang, Malaysia has developed organics management policy focused on food waste, garden waste, animal waste, bulky waste (furniture).

Going forward

- Identify waste source and quantity early in process to target appropriate treatment and processing options.
- World Bank focused on cataloging of successful projects as a tool for policy makers.
- Cities can/should play a role in identification and development of markets for products - reforestation projects, urban agricultural, parks, etc.

- Need to work out how to define municipal role/capacity to work with commercial/industrial waste generators to focus on organics.
- Need to emphasize co-benefits of management of organic waste - environmental and health benefits.

3. Landfill and LFG Management Breakout session

Barrier identification and brainstorming

Context adaptation

- Select appropriate approach and technology for local context. Different cities are in different stages in their waste management system.
- Existing landfills require different strategies than plans for new sites.
- Landfill disposal is a needed practice in many places. Landfill disposal is not going away.
- Is the capacity to improve waste disposal and LFG capture available locally?
- Usually, there are many companies that can do design, consulting and construction. Where is the experience for Operation?
- When considering new landfills, consider future efforts of diversion. There may be no LFG to collect if diversion efforts are successful.
- On diversion aspirations: If there is no capacity for landfill management and operation, how do we expect to find capacity for advanced management practices such as separation, AD, etc.
- There is no single solution for every project. The technical solutions to most landfill management and LFG issues exist. It's the politics, economic and other externalities that need to be addressed.

Cost management

- Can old landfills be mined? Given that CDM revenues have fallen, a new incentive for revenue can be the reclamation of Land from closed landfills. Land is valuable.
- Update the discourse that LFG capture will be a source of revenue and positive return.
- LFG project development should be compared to waste diversion in a long term cost analysis.

- OpEx costs are out of range of many developing cities and MDB money cannot be used to support operation. Ensure financial sustainability of systems. Multilateral Development Banks money cannot go into OpEx.
- What does it mean to be unfeasible project LFG utilization? Existing LFG utilization should stop being seen as a business / revenue generator. It's an environmental problem that won't disappear because the utilization does not have a positive return.
- As you advance in waste hierarchy, the value of LFG decreases.

Operation issues

- Landfill design, build and operation should be granted in a single contract to avoid blame
- Keep responsibility at one point. Improve contracting practices. Ensure transparency.
- Leachate management continues to be a problem.
- Sanitary landfills still may have problems such as odor. O&M Issues
- AD is complex to manage. Performance depends on feedstock commitments.

Regulatory issues

- New recommendations for sanitary LFG - need for regulations to match with technology evolution.
- Are the regulations enough?
- Who enforces regulation?