



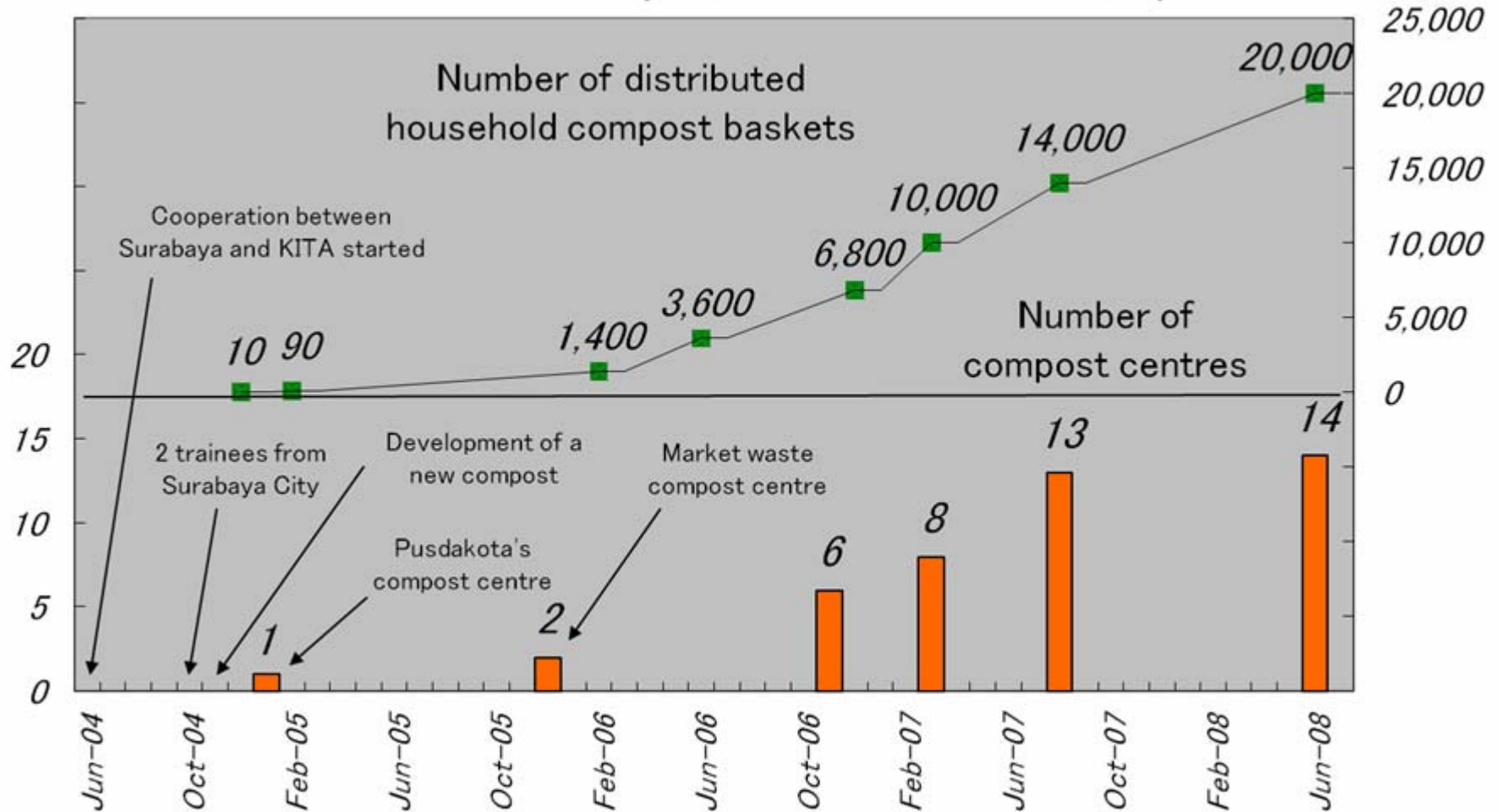
*Kitakyushu Initiative for a Clean Environment*  
International Workshop on Community-based Solid Waste  
Management and Supporting National Policies

1. CDM-applied composting project  
by Waste Concern in Dhaka
2. Economic Analysis of a composting centre  
and CDM application potential

27-28 August 2008 Surabaya City, Indonesia  
Toshizo Maeda, IGES Kitakyushu Office



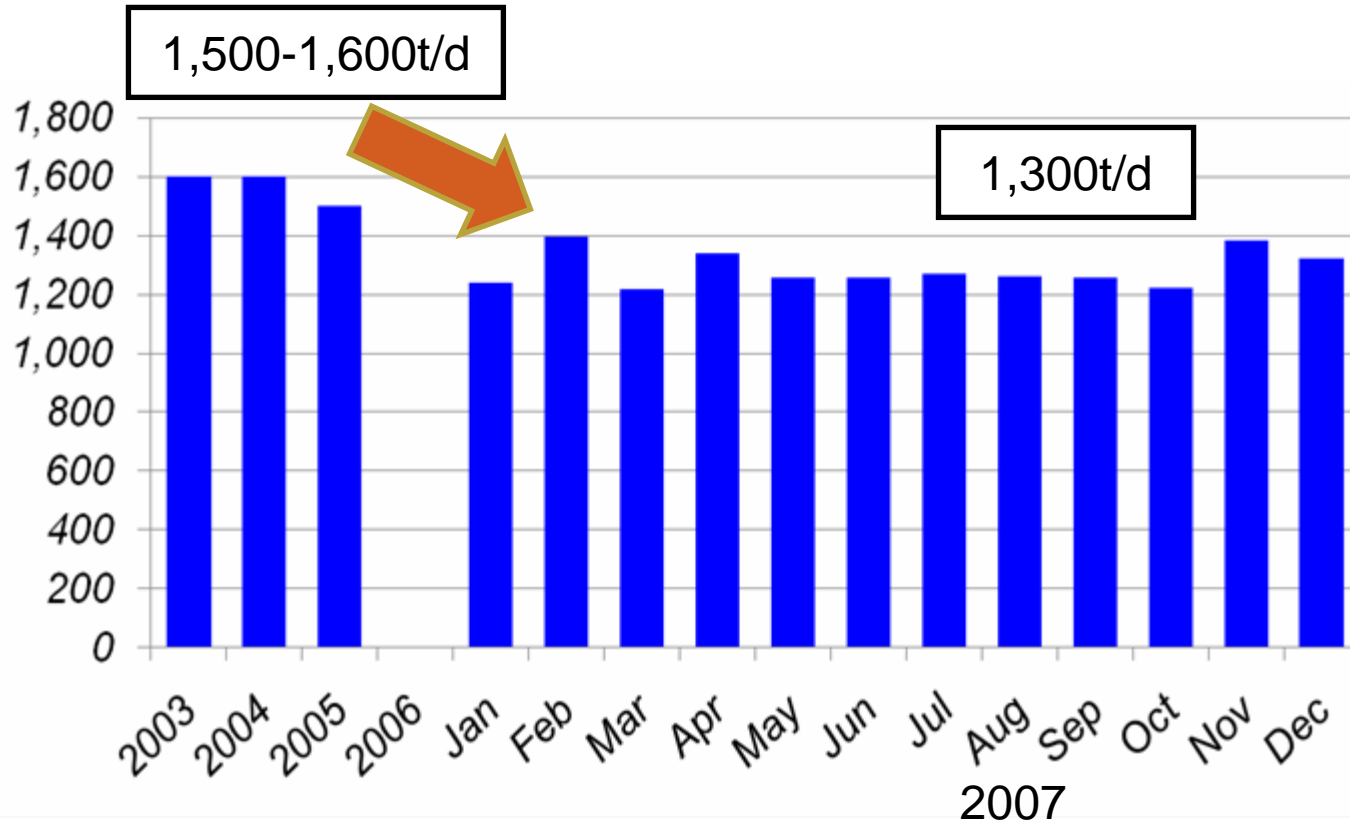
## Number of Household Compost Baskets and Compost Centres



Waste management project in Surabaya, Indonesia



## Weight of waste transported to Benowo Landfill



Total waste reduction: **200t/d** (over 10% reduction in 3 years)

- Market organic waste reduction: **20-30t/d** (at 14 compost centres)
- Household organic waste reduction: **40-50t/d** (by 40,000 baskets)
- Others: **120-140t/d** ← Recycling



## Waste Concern's achievement in Dhaka

- Started a community compost centre (1,000m<sup>2</sup>) in 1995; 3t/d of waste collection from 1,400 households
- → Replicated: 1.75t/d for 800 hhs & 2t/d for 1,000hhs
- → Replicated in 26 cities and towns (UNDP and ESCAP)
- → 7t/d compost centre in Katchpur in 2008
  - Compost production: 2t/d (30% of input)
  - Compost sold at: USD65/t → **USD130/d**
  - GHG reduction: 0.5t-CO<sub>2</sub>/year/t-waste reduction
  - CER price: USD15/t-CO<sub>2</sub> reduction
  - 7t/d waste reduction → 3.5t-CO<sub>2</sub> reduction → **USD52/d**
- 130t/d-plant → 700t/d-plant --- CDM registered in Dec 2005
- SWM cost by Dhaka City: USD28/t (cost saved: **USD200/d**)

# 7t/d-waste Composting Center in Dhaka by Waste Concern



1. Temperature monitoring
2. Workers
3. Oxygen monitoring

*Photo courtesy by Waste Concern*



## Business model of PUSDAKOTA's compost centre

- Waste collection: 1.4t/d (= 40t/m) from 1,000 households
  - Compost production: 10t/m (25% of input)
  - Income: 10t/m x USD100/t = USD1,000/m
  - Expenditure: USD700/m (labor, fuel, admin costs; USD17.5/t)
  - Profit: USD300/m ← **Compost centre is profitable!** (Access to the market is the constraint.)
- 

- CER/VER unit cost: USD5/t-CO<sub>2</sub> (assumption)
- CO<sub>2</sub> reduction rate: 0.5t-CO<sub>2</sub>/t-waste reduction (assumption)  
→ 40t/m x 0.5 x USD5 = **USD100/m**
- SWM cost: USD10/t-waste (assumption)  
→ 40t/m x USD10/t = **USD400/m** (cost saved)

← **Local governments can support community compost centres!**





## Business model of Surabaya City's compost centre

- Waste collection: 5t/d (= 150t/m) from vegetable markets
  - Compost production: 30t/m (20% of input)
  - Income: 30t/m x USD100/t = USD3,000/m
  - Expenditure: USD2,600/m (labor, fuel, admin costs; USD17.5/t)
  - Profit: USD400/m ← **Compost centre is profitable!** (Surabaya City is not selling the compost though.)
- 
- CER/VER unit cost: USD5/t-CO<sub>2</sub> (assumption)
  - CO<sub>2</sub> reduction rate: 0.5t-CO<sub>2</sub>/t-waste reduction (assumption)  
→ 150t/m x 0.5 x USD5 = **USD3,750/m**
  - SWM cost: USD10/t-waste (assumption)  
→ 150t/m x USD10/t = **USD1,500/m** (cost saved)

← **Local governments can setup market-waste compost centres!**



# Surabaya City's compost centres





## **Business model of Surabaya City's waste reduction**

- Organic waste collection: 60t/d (= 1,800t/m)
- Compost production: 360t/m (20% of input)
- Income: 360t/m x USD100/t = USD36,000/m
- Expenditure: USD31,500/m (USD17.5/t-waste)
- Profit: **USD4,500/m**
- CER/VER unit cost: USD5/t-CO<sub>2</sub> (assumption)
- CO<sub>2</sub> reduction rate: 0.5t-CO<sub>2</sub>/t-waste reduction (assumption)  
→ 1,800t/m x 0.5 x USD5 = **USD4,500/m**
- SWM cost: USD10/t-waste (assumption)  
→ 1,800t/m x USD10/t = **USD18,000/m** (cost saved)  
→ 200t/d reduction → USD60,000/m (cost saved)

**← Local governments should promote composting!**

# “Clean & Green Campaign” in Surabaya





## **Business model of composting: Conclusion**

- Business model of a compost centre is profitable (without CDM ← contradicts with “additionality”).
- CDM can enhance the profitability. (It can be applied by consultants and other agencies.)
- SWM cost reduction is larger than the profit made by selling the compost.  
→ **Local governments can support compost centres.**