Phitsanulok City Municipality Model

: Solid Waste Management

Phitsanulok Municipality

Area 18.26 km²

33,000

Households

90,000

registered inhabitants

50,000-100,000

non-registered inhabitants

Solid waste generation

80 ton/day

Joint Thai-German Solid Waste Management Programme

1997	1999-2002	2002-2007
❑ Study of solid waste management	❑Academic assistance ❑Improve Solid waste management	❑Terminate to central government ❑Distribute to local government

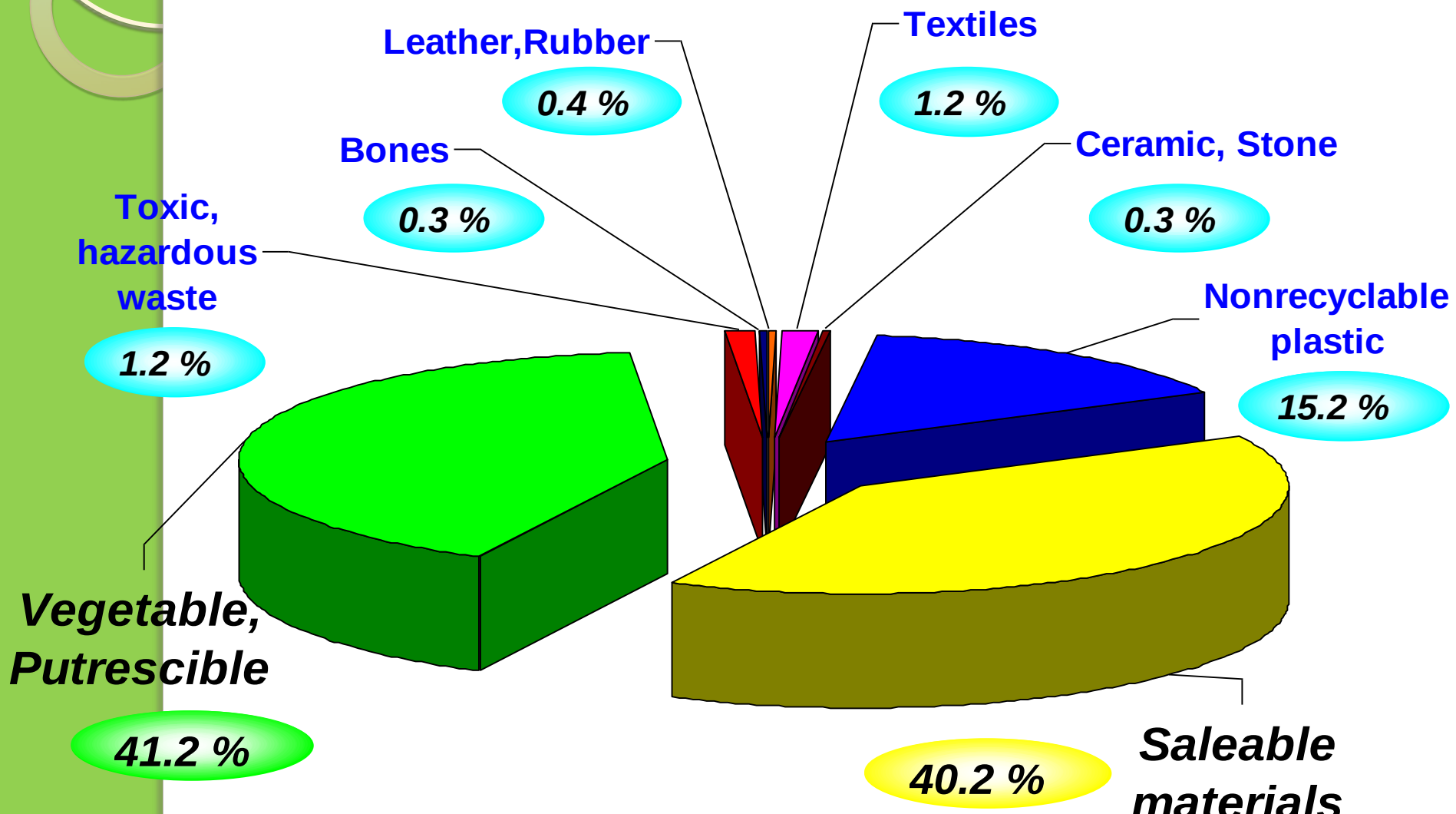
COOPERATION
KINGDOM OF THAILAND
FEDERAL REPUBLIC OF GERMANY

gtz

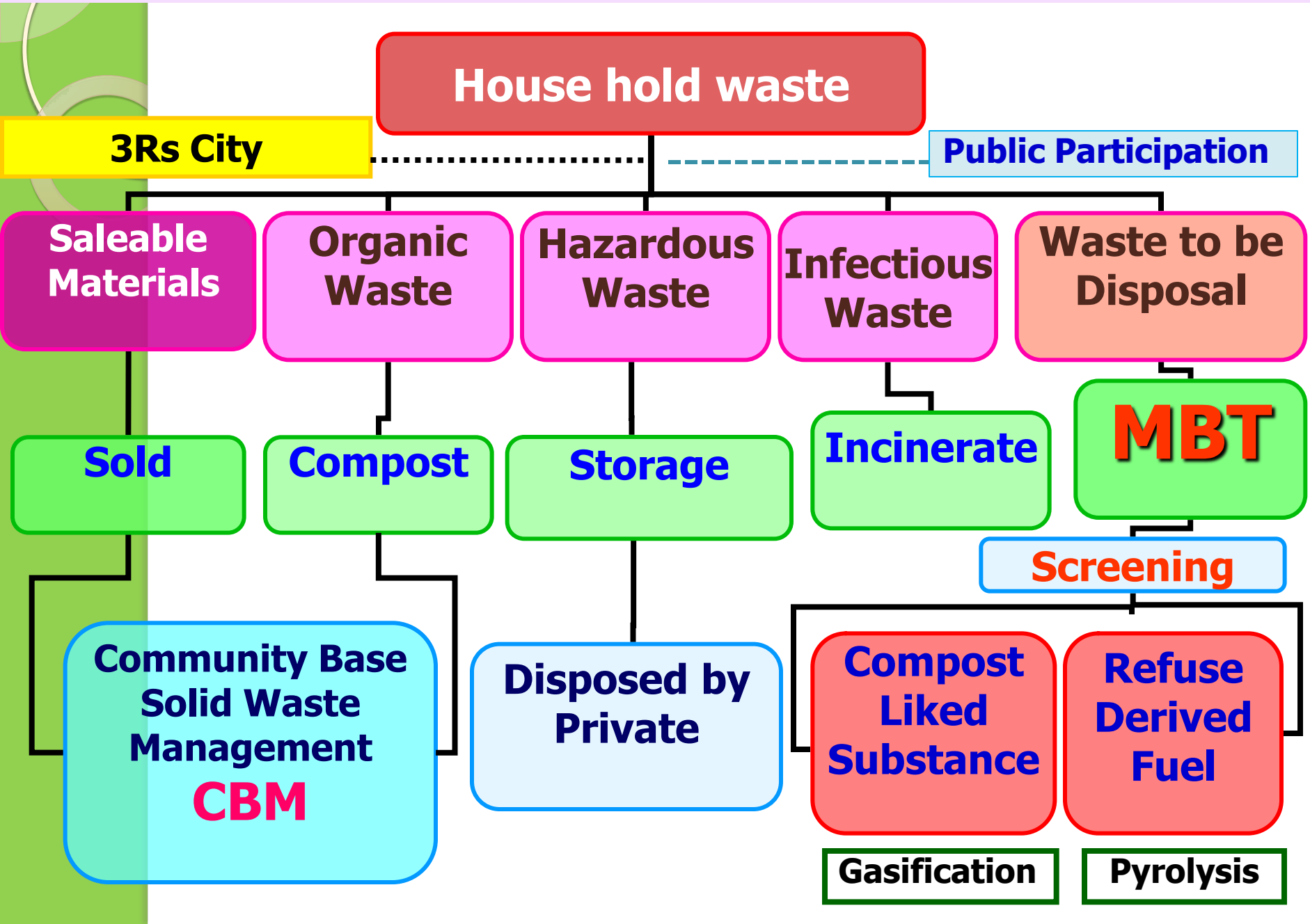
Problems

- A lack of awareness about waste
- High amount of organic material
- The lack of technological know-how needed for modern waste management
- The lack of cooperation between the concerned local authorities and central government departments
- The subsidizing of waste management

Waste composition



Phitsanulok Model



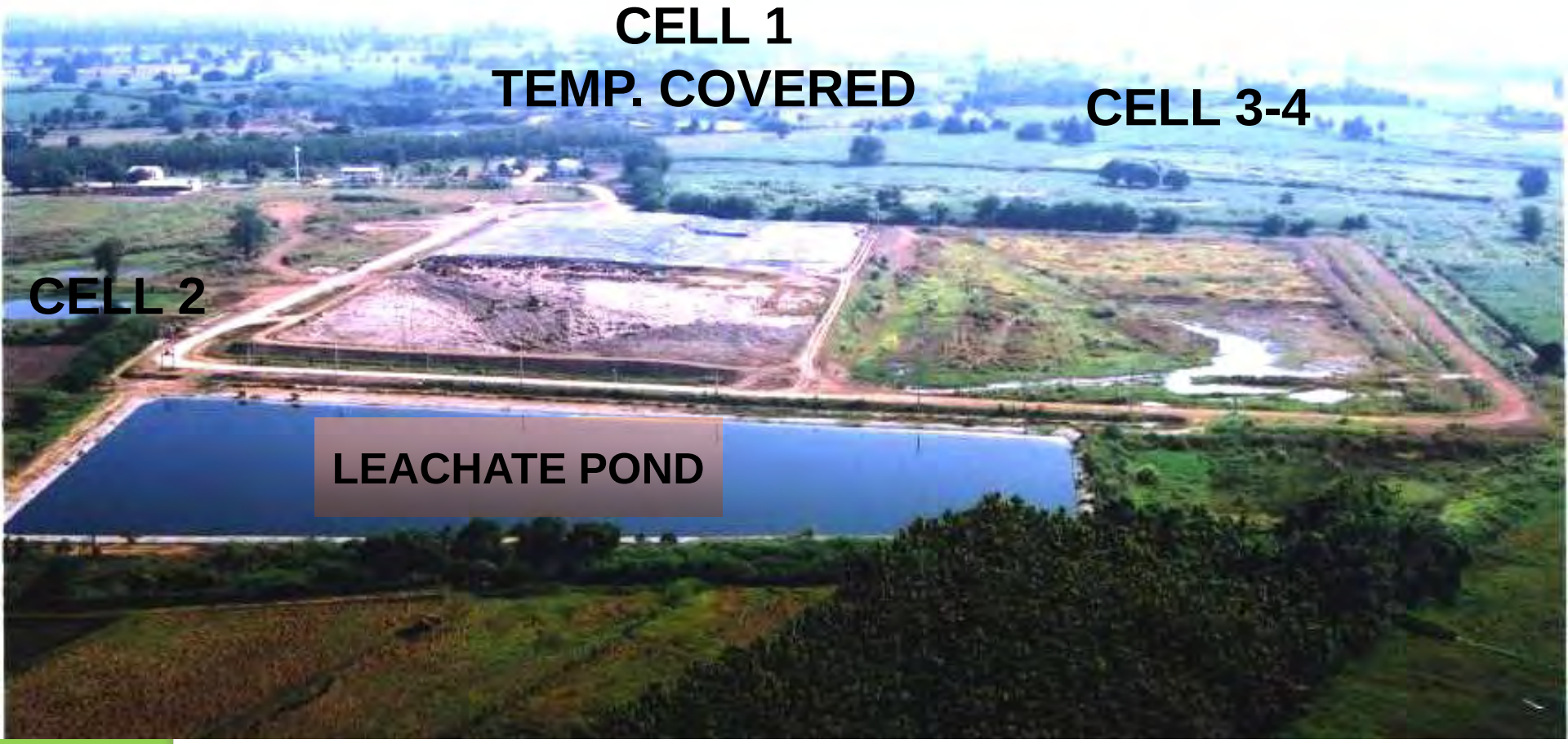
Organization & Management

Improvement of waste collection system


Transfer Station

Infectious Waste : Incinerate

SLF PHITSANULOK



Mechanical - Biological Waste Treatment :MBT

MBT Process

Step 1 : Mechanical treatment



Step 2 : Biological treatment




Step 3 : Screening


Compost Liked Substance (Biomass)

Refuse Derived Fuel : RDF

Gasification

Pyrolysis

Compost Liked Substance

Biomass : For Gasification

Technology for Recycling Dry Organic

Compost Liked Substance

Biomass

Gasification

Refuse Derived Fuel :RDF

Technology for Recycling Plastic Waste

Refuse Derived Fuel :RDF

Pyrolysis

Reform Plastic to Fuel

Public Participation

Promotion in Phitsanulok city municipality,Thailand:

Campaign &Public Media

Mobile Unit

Workshop Training

Door-knock Activity

Set up Environmental Protection Volunteer :

To helping build awareness

At the household level, the separation of waste is introduced.

- Recyclable or saleable ; Saleable materials is sorted for selling

- Organic waste ; Kitchen waste and other organic material is separated for compost making which can be done both in household and community level.

- Hazardous waste ; The hazardous waste have to be sorted out for municipality for further collecting and transferred to private company.

- Waste to be disposal ; The left waste which need to be disposed will be presented to municipal waste truck in the agreed time.

Campaign: Avoid and Reduce

No Plastic bag

Set up Environmental Protection

Volunteer

To helping build awareness

Household Level

Separate Saleable Materials at household

Community Level

MICRO-ENTREPRENEURS

WASTE BANK

WASTE MARKETS

SOLD ENTREPRENEURS

Separate Organic Waste at household

Household Level

Backyard Composting

Biological water

Community Level

Central Composting

Biogas

Reuse Activities :

From Paper

Plastic

- **To make People understand and to announce the timetable**

Waste bin-free Community

Waste bin-free street activity

Separate Hazardous Waste at Household

1 Drop off

2 Collection

Storage 3

4 Transport

5 Disposed by Private

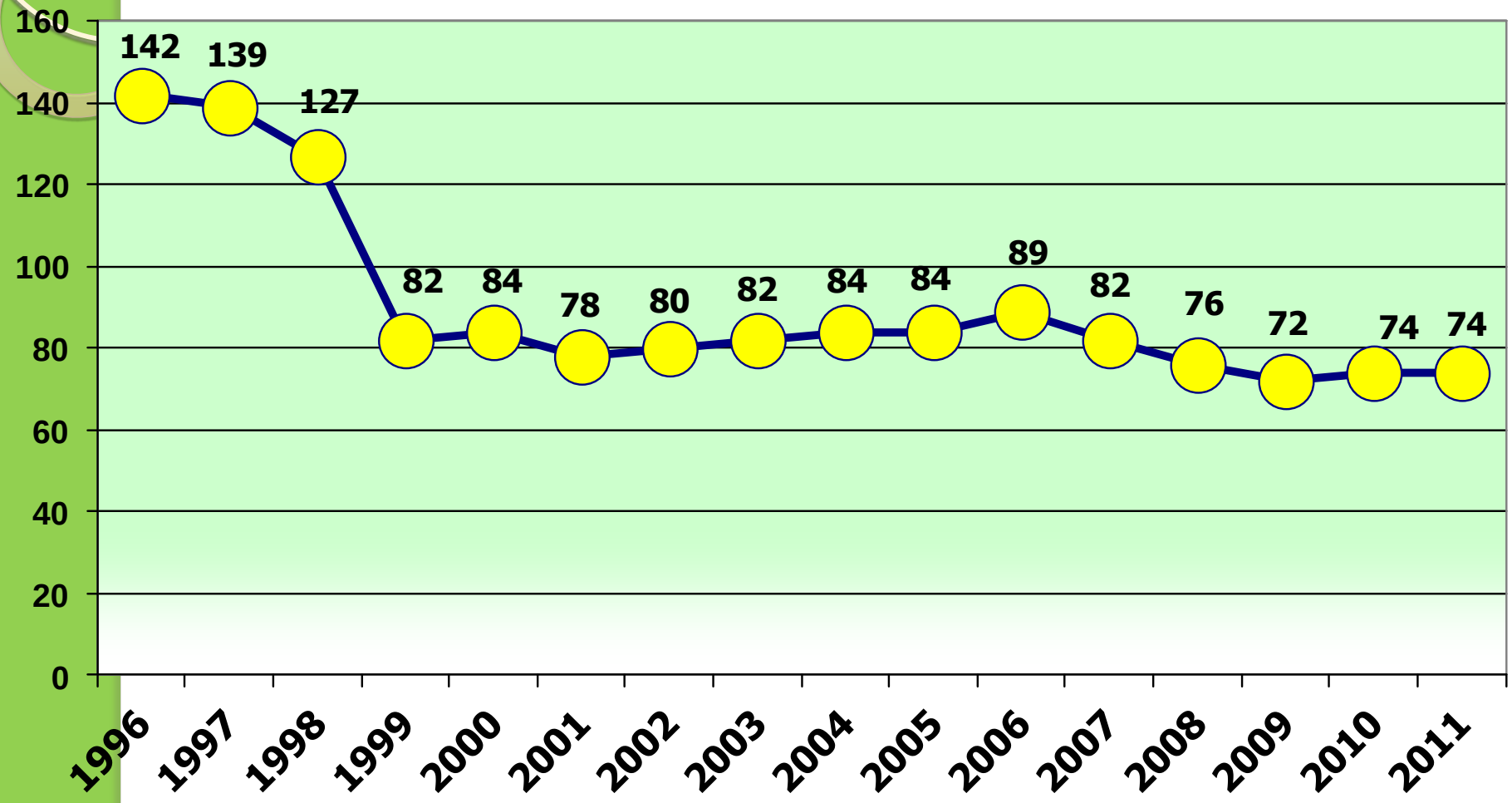
Outcome:

- Built up understanding of the polluter-pays-principle which has led an increase in waste separation and reduction from previously 142 tons per day to 75 tons per day.
- Through improve management capacity at operational and administrative level, services became more efficient and cost-effective which has led to and increase of cost-coverage from 10%(1999) to be 50%(2011).
- Both partners benefit from the implementation of the programme in a classical win-win situation:
  - The communities or individual households have additional income from the salable materials. Compost. The waste handling is much cleaner and the surroundings are kept clean and beautiful.
  - The municipality gains dominantly in less waste for collection and disposal as well as reduced collection frequency.

Sustainability

- The Phitsanulok model of community based waste management (CBM) has proven to be effective in raising awareness and motivation
- Built up understanding of the polluter-pays-principle which has led an in crease in waste separation and reduction in waste generation per person from 1.5 kg. to about 0.91 kg.

Amount of Waste (tons/day)



Community-Based Solid Waste management: CBM

Curriculum overview

- The mayors and city councilors as decision makers in a municipality
- The implementing staff from municipality, responsible for implement
- The communities responsible for the implementation of CBM in their area and households

Training Approach

Best Practice Certificate

:DUBAI INTERNATIONAL AWARD
For Best Practice To Improve The Living Environment

Certificate For CBM

Best Practice in the year 2006

DUBAI INTERNATIONAL AWARD
For Best Practices To Improve The Living Environment

جـائـــزة دبـــي الـدوليـــة
لأفضل الممارسات في مجال تحسين ظروف المعيشة

الأمم المتحدة
UNITED NATIONS

شـــهادة أفـضل ممـارســة

Best Practice Certificate

The Dubai Municipality, Dubai-United Arab Emirates & the United Nations Human Settlements Programme hereby certify that

Community-Based Solid Waste Management (CBM) - THAILAND

was selected as a Best Practice by an International Independent Jury for the Dubai International Award for Best Practices in the year 2006 for its outstanding contribution towards improving the living environment.

بلدية دبي
DUBAI MUNICIPALITY

الموئل
UN - HABITAT

Mr. Hussein Nasser Lootah
Acting Director-General
Dubai Municipality

ISSUED OCTOBER 2006

Mrs. Anna K. Tibaijuka
Under-Secretary General
Executive Director UN-HABITAT

The ASEAN ESC Model Cities Programme (Phitsanulok)

Enhancing and of the Community-Base Solid waste Management (CBM) Training Curriculum and Expanding its Application in Phitsanulok

Activities

1. **Workshop on improving the CBM curriculum and TOT for CBM**
2. **Expanding the pool of trainers**
3. **Disseminating the training across four local administration authorities as well as publishing CBM efforts**

Results

- The CBM handout and TOT for CBM as an 2012 improved version

- Will be published and distributed to concerned organization such as the Ministry of Natural Resources and Environment, Municipal League and so on.

The ASEAN ESC Model Cities Programme (Phitsanulok)

Thank you

For

Your Attention