

# Community Participation in Solid Waste Source Separation Programme – A Case Study of Un Chau Estate



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# Why Waste Separation?

- Most waste management strategies recommend waste separation
- Reduce the dependence of subsequent treatments



# Components of Community Participation in Waste Separation

- For successful waste separation there must be community participation
- Community participation
  - awareness
  - education
  - Infra-structure and management
- Each of them is equally important.



# EPD's Efforts Towards Waste Separation Facilities

- Color coded waste recycling bins are placed in public places, housing estates, institutions, etc.
- Source separation in housing estates



# EPD's Efforts Towards Education and Awareness

- EPD has been conducting education and awareness programmes to reduce waste since the early 1990s.
- Since 2001 \$13.82 million from the government's Environment and Conservation Fund has been given to 24 community and green groups to organize more than 40 waste recovery projects. (as of 2003)



# EPD's Efforts Towards Education and Awareness

There has been widespread community education and awareness campaigns for most residents in Hong Kong.



# EPD's Efforts Towards Education and Awareness

- Media has been used to encourage people to separate waste.



# EPD's Efforts Towards Education and Awareness

- Most residents in Hong Kong, unlike in the 1990's are aware of the need to separate waste.
- The waste reduction in the domestic sector has only improved from 8% in 2001 to 14% in 2004.
- Why there is a **lack of participation in separating waste?**
- Why there is no progress from **education and awareness to actual participation?**



What are the attributes leading to high community participation?



# Community Participation - Involvement of Stakeholders

- Community participation requires the involvement of all the stakeholders
  - The residents
  - The waste collectors
  - The recyclers
  - The government



# Community Participation - Education and awareness programme

- Education and awareness campaigns are important and continuous.
- For example in Nova Scotia, even though they reached their set target for waste reduction in 2000, their education component did not stop.
- Moreover, it should also target the problems that arise.



# Community Participation – The Grass Roots Level

- When community participation is required, each and every resident in the building has to be reached.
- So a grass roots level approach is necessary.
- A sense of ownership or achievement usually results in further success.



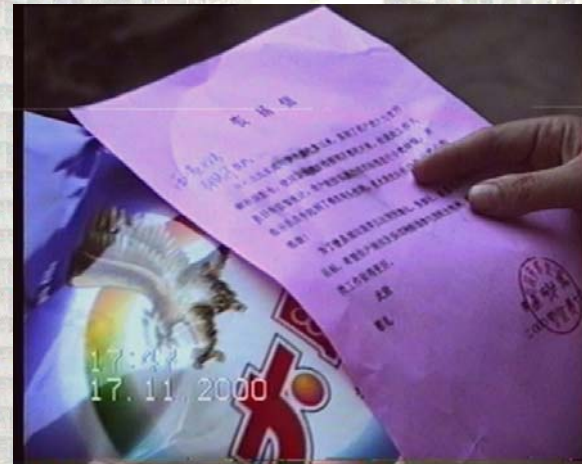
# Community Participation – Skills and Infrastructure

- There is a need to work along with the community to empower them and the others (the management, cleaners, etc.) with the necessary skills for waste separation
- Facilities for waste separation within residents' house, collection, regional municipal recycling facilities and final reuse.



# Community Participation -Incentives

- Some kind of incentive is always better, either for the residents or the people who collect and dispose the separated waste.
- Make sure the separated wastes will not go to landfill and nobody's effort goes waste.



# Possible Reasons for Low Participation in Hong Kong

## ■ Lack of

- Education i.e., proper know how to properly separate waste
- suitable infrastructure
  - Space constraint in Hong Kong has to be kept in mind
  - Residents may not be willing to store their separated waste in their houses
  - Provision of common facilities at the residential areas, which are regularly cleared
- suitable recycling facilities/recyclers in convenient places to accept separated waste
- incentives, either to the resident or collector
- knowledge regarding what to do with the separated waste



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Are these difficulties unable to overcome?

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Door-to-door Waste Separation Programme for Un Chau Estate – To see whether it is feasible for our residents to perform source separation at home.



# Objectives of the Programme

- To develop a green community
- To empower the community in waste reduction
- To check the economic viability of door-to-door source separation programme



# Community Involvement

- Instituted a “Green Community Advisory Committee” to provide supervision and advices to the programme.
- Included district councilors, chairs of each Residents, Corporation Bodies, local organizations including elderly centre, kindergardens.
- This helped to get the involvement of various sectors to participate in the waste separation programme.



# Environmental Education and Awareness Programmes

- A number of programmes to help to raise the awareness of the residents:
  - Green consumer education programme
  - Second hand market
  - Establishment of a green cooperation
  - Food waste composting and organic garden



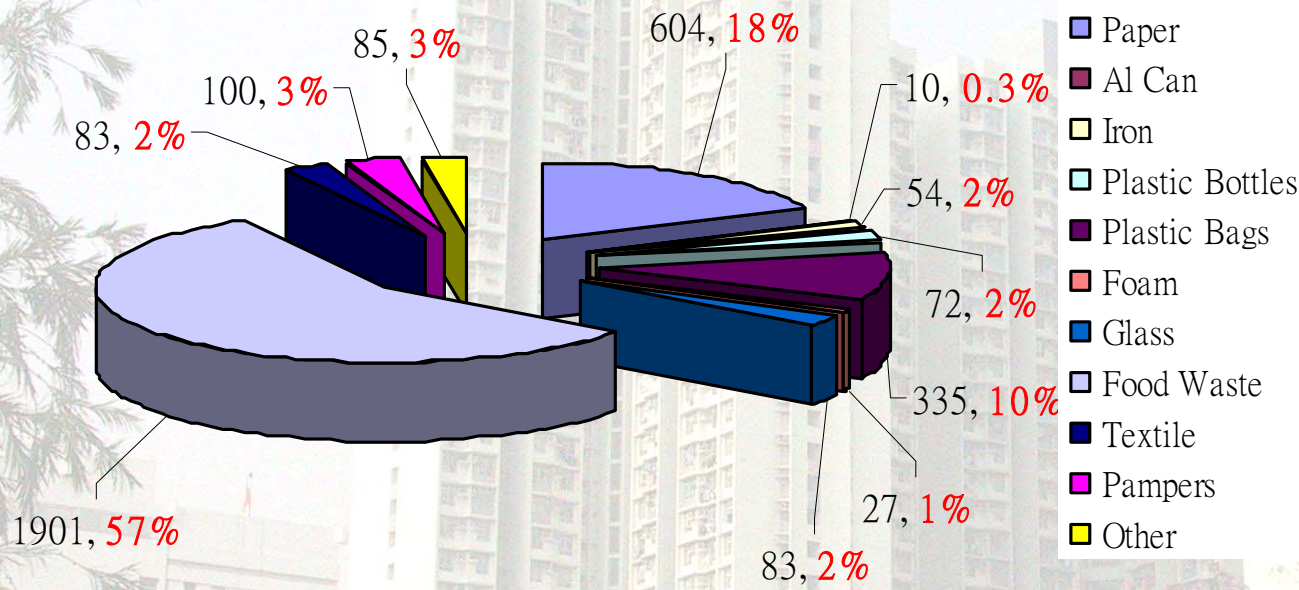
# Environmental Education and Awareness Programmes



# Food Waste Composting and Organic Gardening



# Waste Auditing



# Programme Design Rationales

- **Easy and Convenient:**
  - Door to door collection service to provide the best facilitation for residents to dispose their recyclables
  - Integrated into the existing collection program
  - Collection bags with clear label for those materials that can be collected and recycled
- **Education:**
  - Continuous education program to arouse the participation of residents
- **Incentives:**
  - Provide incentives for those with high participation



# Waste Separation and Collection



**Step 1**

Waste separation at home



Store recyclables in blue plastic bag



**Step 2**

Door-to-Door Collection by Cleanser



**Step 3**

Separation and data collection

**Step 4**

Sold to Recyclers



# Components of Recyclables Collected

Paper

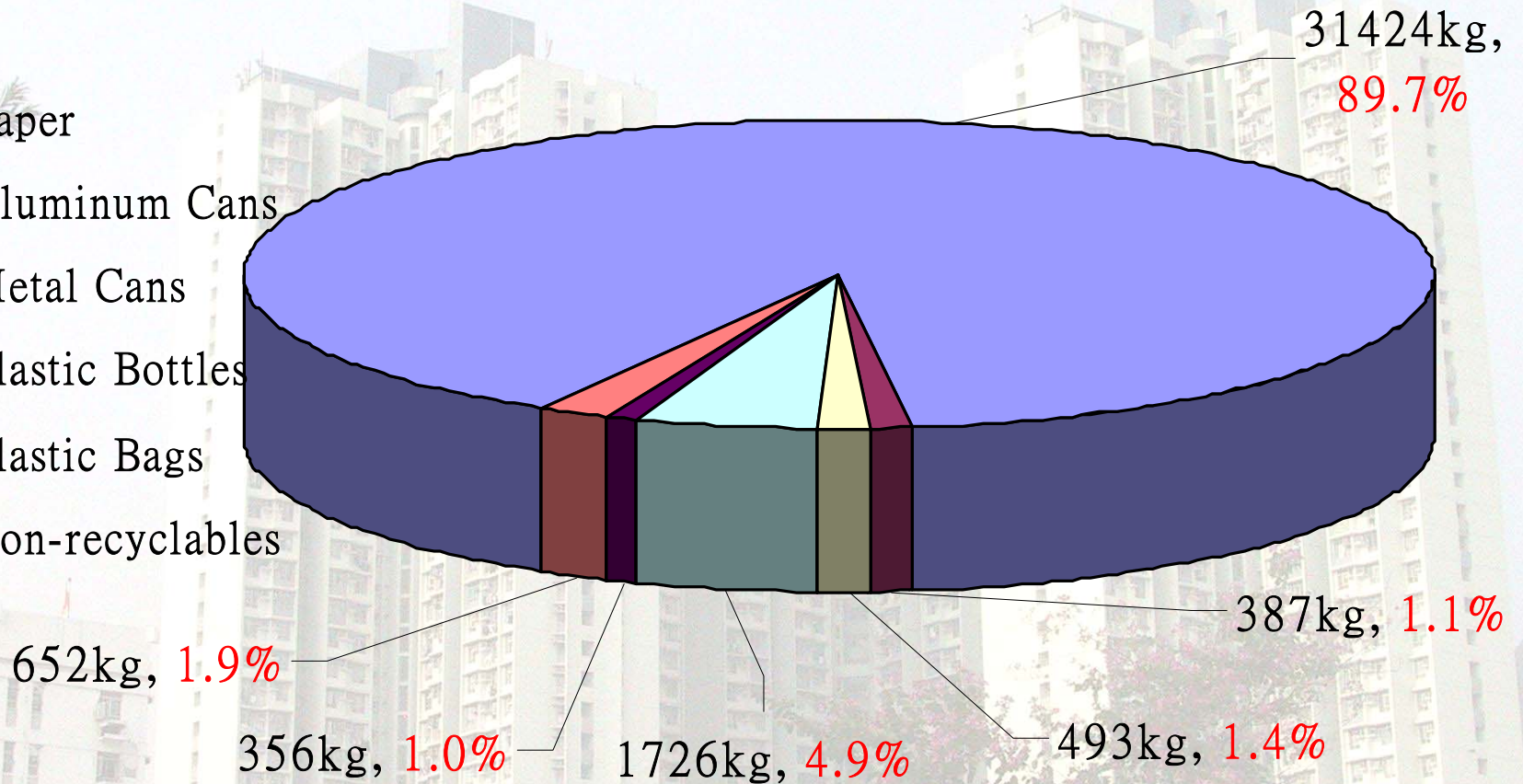
Aluminum Cans

Metal Cans

Plastic Bottles

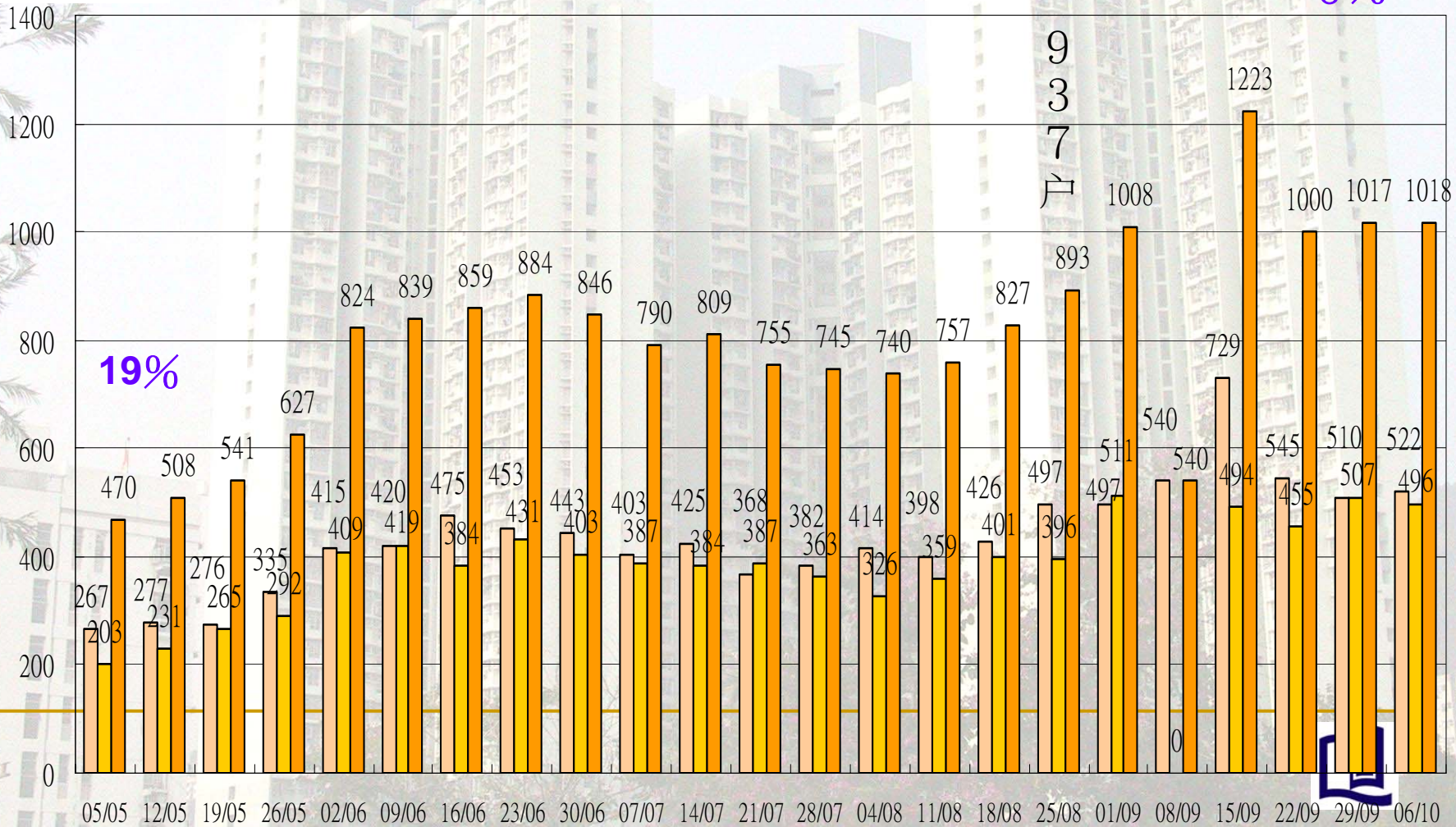
Plastic Bags

Non-recyclables



# Participation Rate

Number of plastic bags



# Changes in Recycling Rates

Final average weekly recycling rate = 1.8 ton

Weight (kg)

2500

2000

1500

1000

500

0



# Effectiveness of the Door-to-Door Waste Separation Programme

- The participation rate reached >40%
- Almost 47% of the recyclables could be recovered from the trash and nearly 20% came directly from the programme.
- The waste reduction rate was 17% which is slightly more than double that of the original 7% ;
- It is almost 30% higher than the 14% waste reduction rate of the housing estates.



# Cost Effectiveness

<b>Door-to-Door Waste Separation Programme</b>				
<b>Weekly Expense</b>		<b>Weekly Income</b>		<b>Net Expense</b>
Admin and Cleaners	\$930	Selling Recyclables	\$1,188	
Blue Bags	\$422			
Gift	\$112			
Promotion	\$23			
<b>Total</b>	<b>\$1,487</b>		<b>\$1,188</b>	<b>\$299</b>
<b><i>Disposal cost if without separation (2 ton/wk)</i></b>				<b><i>\$1,720</i></b>



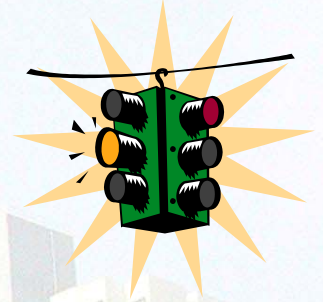
# Potential Benefits

- **If expanding this programme to all households... :**
- Estimated amount of recyclables (per yr) = 8 4,8 3 0 ton
- Expense per year = \$ 1 2,6 8 1,8 6 8
- Treatment & disposal cost (per yr) = \$ 7 2,9 5 2,5 5 7
- **Savings for the SAR Govt = \$60 million**

**Can create 5,000 low-skilled positions**



# Conclusions and Reflections



- The environmental awareness of our residents is acceptable.
- Although there is space constraint, residents can still manage.
- Door-to-door waste separation makes them no reason of not to participate. Incentives can encourage the participation.
- Blue bag provides clear message of what to be recycled.
- Only minimal extra manpower is needed.
- Continuous environmental awareness program is necessary.





*Thank You!*