

OES-SAVE Collaborative Environmental Stewardship Initiatives

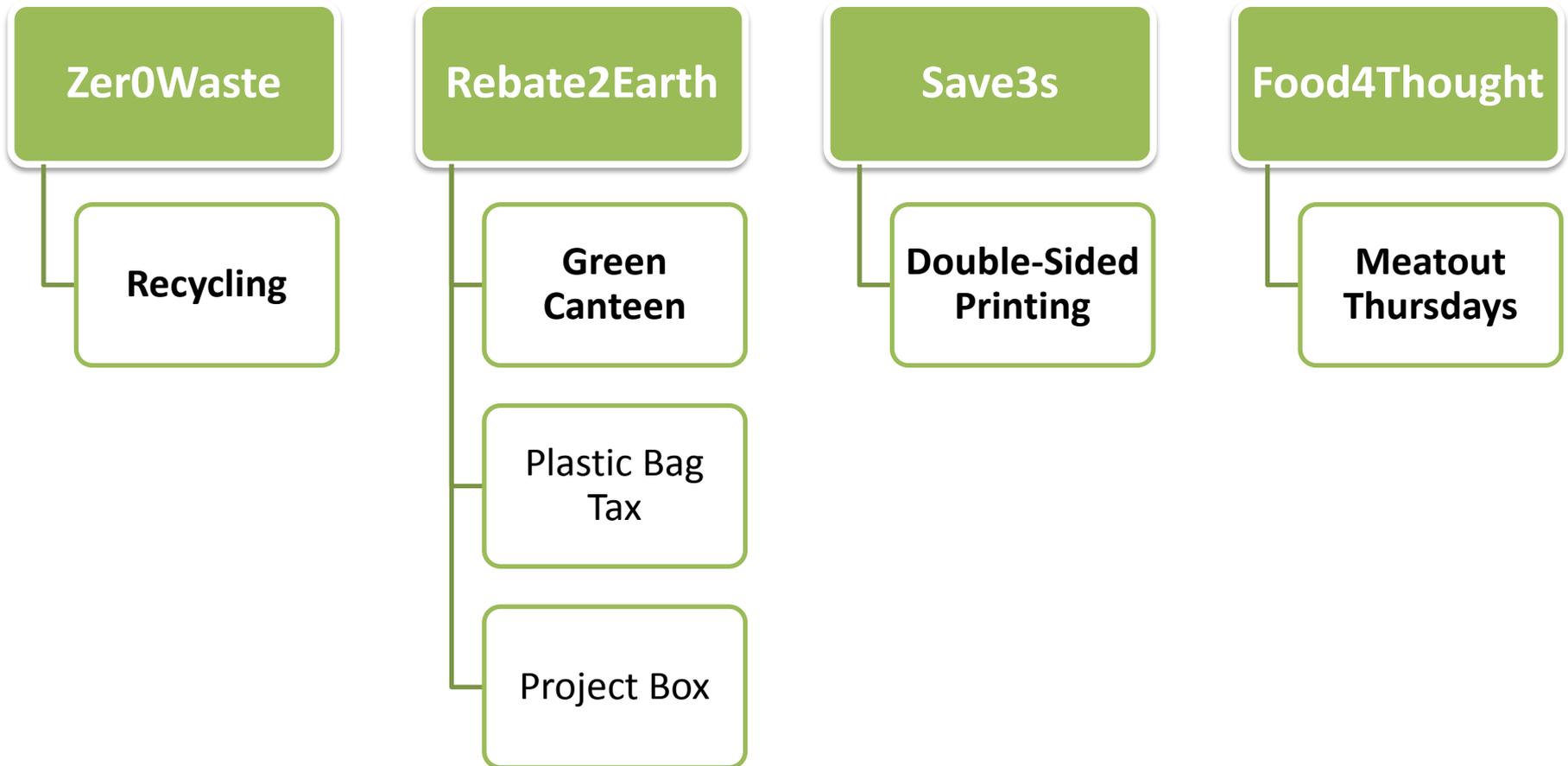


International Alliance of Research Universities: Sustainability Working Group
February 3rd – 5th, 2010

Innovations & Highlights



Innovations & Highlights



Rebate2Earth

- **Plastic Bag Tax**
- **Project Box**

Plastic Bag Tax

- **Reduce pervasive & ubiquitous plastic bag usage by phasing out free bags.**
- **Educate the NUS community to raise awareness regarding the dire effects of plastic consumption.**
- **Create a conducive environment for responsible consumerism with minimal plastic wastage.**

Plastic Bag Tax

- **Plastic Bag Tax (10 cents per bag) at:**
 - **NUS COOP bookstores and all drinks/fruits stores in NUS canteens.**
 - **Participating NUS canteens (Pilot Phase: Mar to May 2009).**
- **Proceeds collected channeled into Rebate2Earth Fund.**

Project Box

- Green Canteen Launch on 18 Jan 2010.



Moving Towards
NUS Green Canteen

Rebate 2 Earth

A Joint Initiative by:
 Students Against Wasteful Use of Earth
Office of Estate and Development
Office of Housing Services
Office of Environmental Sustainability

Supported by:
 NUSSU
National University of Singapore
Students' Union

As of 18 Jan 2010, all canteen stalls will charge 10 cents for each plastic bag requested.
Refuse Plastic Bags. Reduce Waste

Bring your own container for takeaways to enjoy **\$2[#] off** your next meal!
(Terms and conditions below)

REFUSE PLASTICS

PROJECT BOX



Mandatory Double-Sided Printing

Mandatory Double-Sided Printing

- **NUS recognises the environmental impact of high paper consumption which contributes to deforestation & waste production.**
- **Deforestation is a major cause of global GHG emissions, especially in Southeast Asia where the forestry sector contributes a significant share of the region's GHG emissions.**

Mandatory Double-Sided Printing

- **For all offline student submissions & theses (all NUS modules).**
- **Computers in NUS libraries and printing centres set to default double-sided printing.**
- **Encourage electronic submissions for student assignments wherever possible.**

Mandatory Double-Sided Printing



- **NUS as first tertiary institution in Singapore to implement such a policy.**
- **Future plans: Mandatory double-sided printing for all on-campus office documents.**

Meat out Thursdays

Meatout Thursdays

- **A voluntary weekly campus observance where students and staff choose to have plant-based meals every Thursday.**
- **Advocate a plant-based diet as an alternative lifestyle.**
- **Worked with the canteens to provide a meatout combo at every stall.**
- **Canteen Roadshow on 14 Jan 2010 at Faculty of Arts canteen by promoting vegan snacks.**

NUS Recycling: Systemic changes



A journey from before Aug 2009

NUS Recycling Journey.

Before Aug 09:

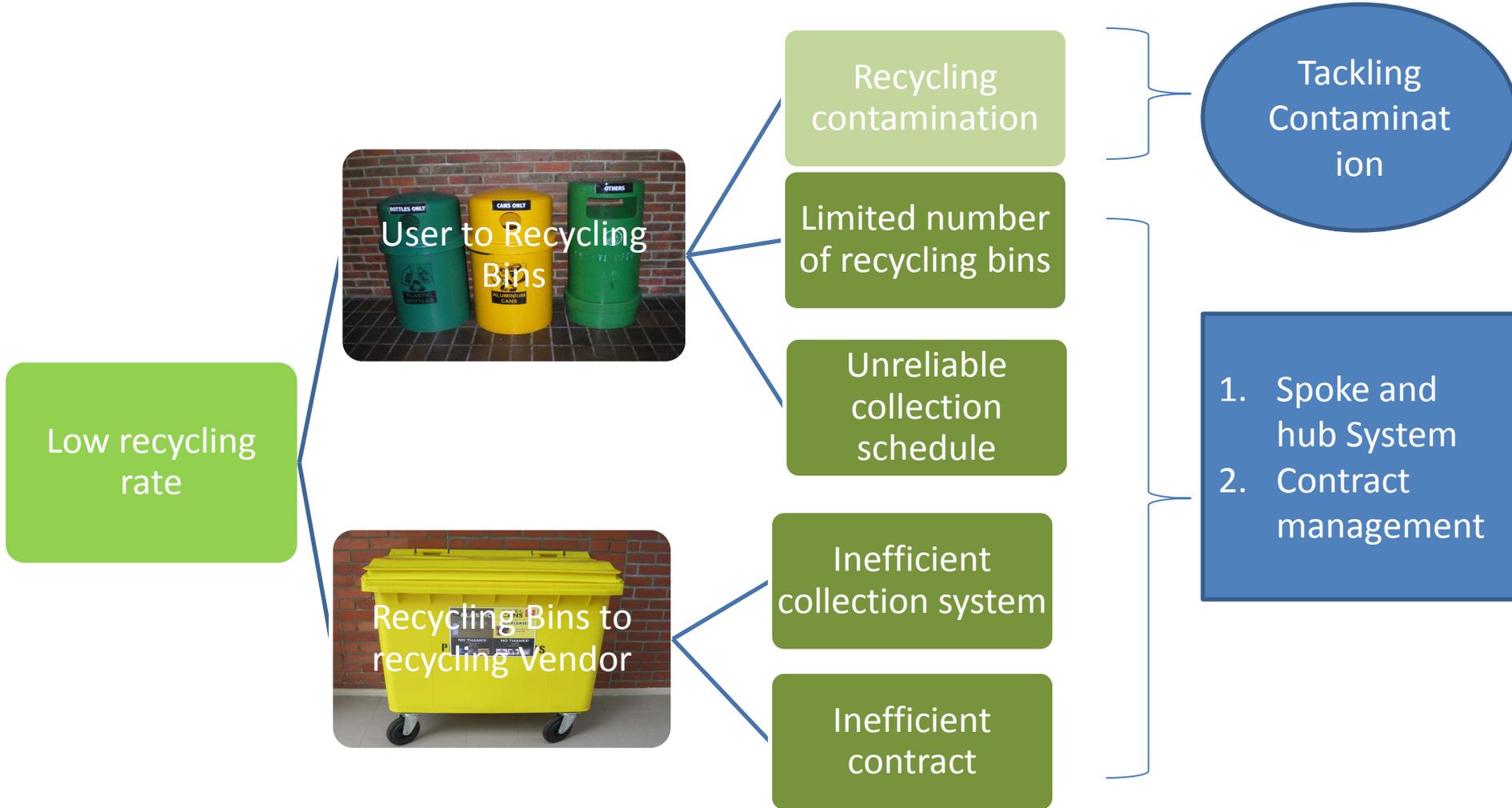
Tackling contamination, resolving systemic inefficiencies in logistics and contract

Low Recycling Rates

Our Recycling Statistics

Year	NUS total waste ('000 tonnes)	Paper (kg)	Plastic (kg)	Cans (kg)	Total Recyclables (kg)	Total Recyclables excluding food waste (kg)	Recycling rate excluding food waste recycling
2006	2.621	76,910	3469	923	81,302	81,302	3.01%
2007	3.079	94,510	2729	392	97,631	97,631	3.07%
2008	2.833	69,580	3600	203	394,783	73,383	2.27%

Status of NUS Recycling (before Aug 09)



Tackling Contamination

Before Oct 2008



Results in Jan/Feb 09



Level of contamination dropped drastically

Infrastructural issues of NUS recycling

Logistics & Contract Problems and
Solutions: Before Aug 09

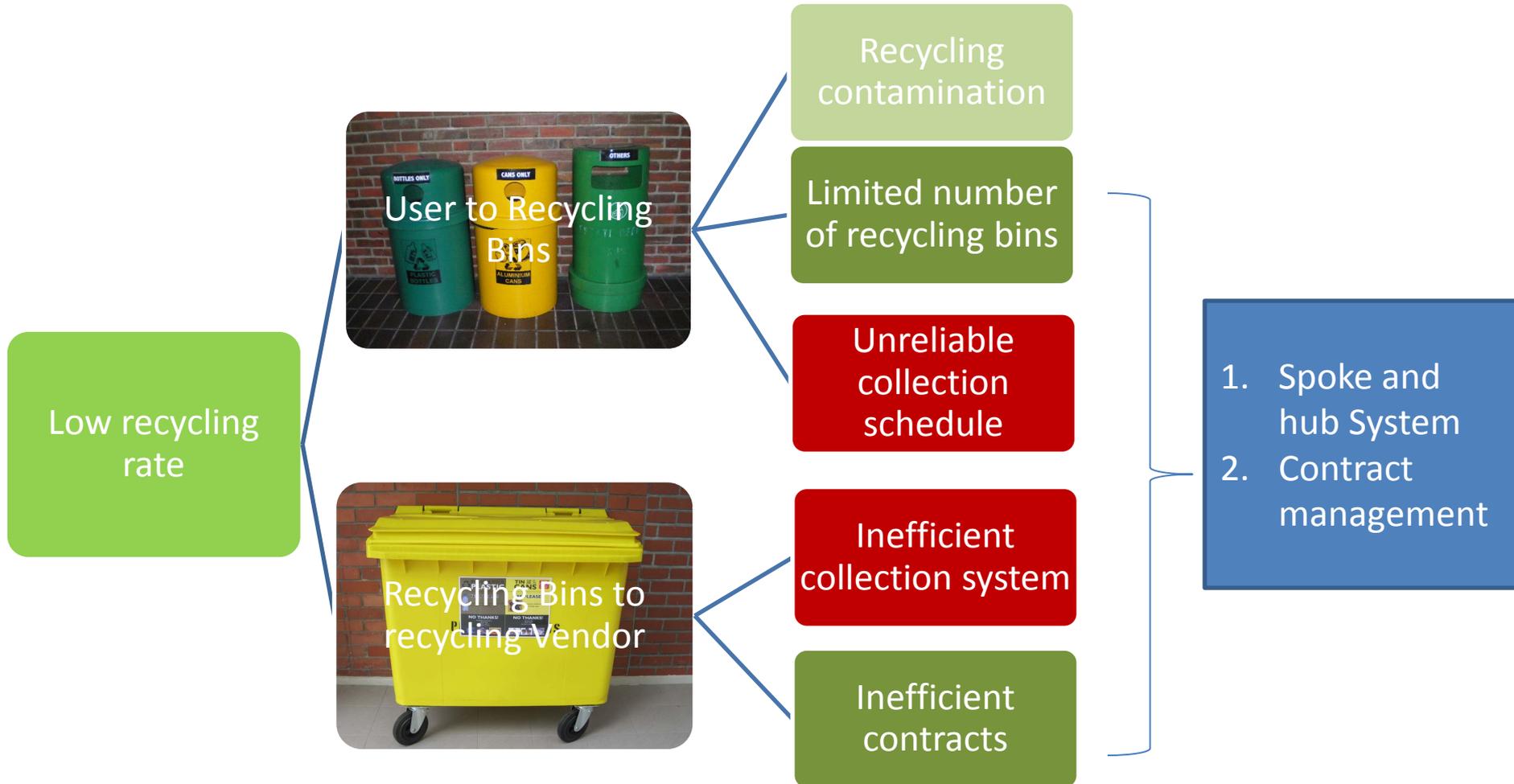
1. Inefficient recyclable collection system

- Unreliable collection system
- Term contractor additional cost

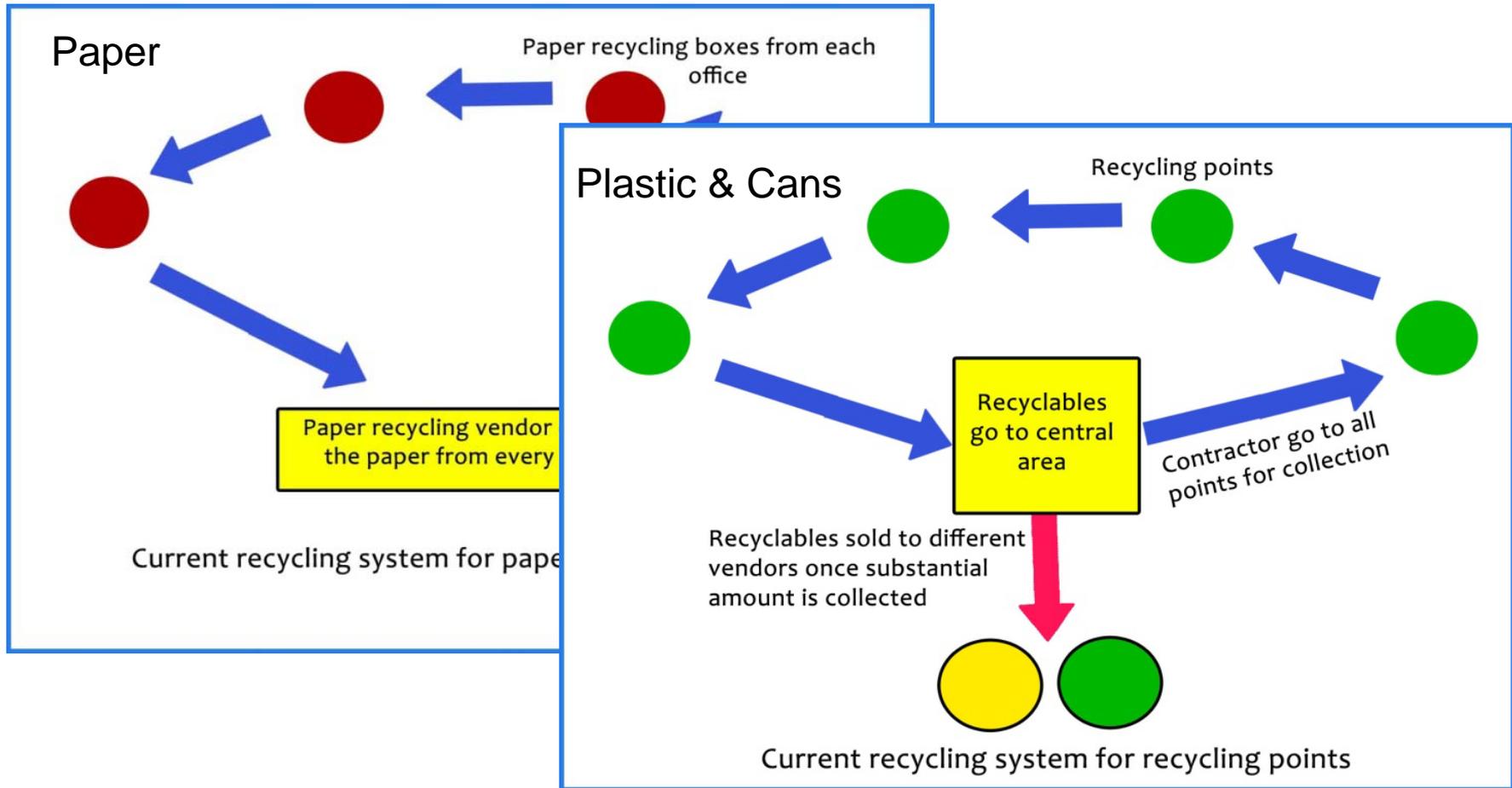
2. Contract inefficiencies

- Contract limited number of collection points
- 4 different contracts – administratively troublesome
- Economically unviable (?)

Status of NUS Recycling (before Aug 09)



1. Inefficient paper, plastic and cans collection system – original system



1. Inefficient paper, plastic and cans collection system – unreliable service

Recyclers/ contractors collect from point to point

a. 100+ points in various offices for paper

b. 39 points for plastic and cans all over campus

Too many locations result in recycling contractor missing locations – unreliable to users

1. Inefficient paper, plastic and cans collection system – Term contractor for plastic/cans



- **Additional cost in engaging additional term contractor to collect recyclables from recycling points to a central location to wash and store**

Status of NUS Recycling (before Aug 09)

Low recycling rate



Recycling contamination

Limited number of recycling bins

Unreliable collection schedule

Inefficient collection system

Inefficient contracts

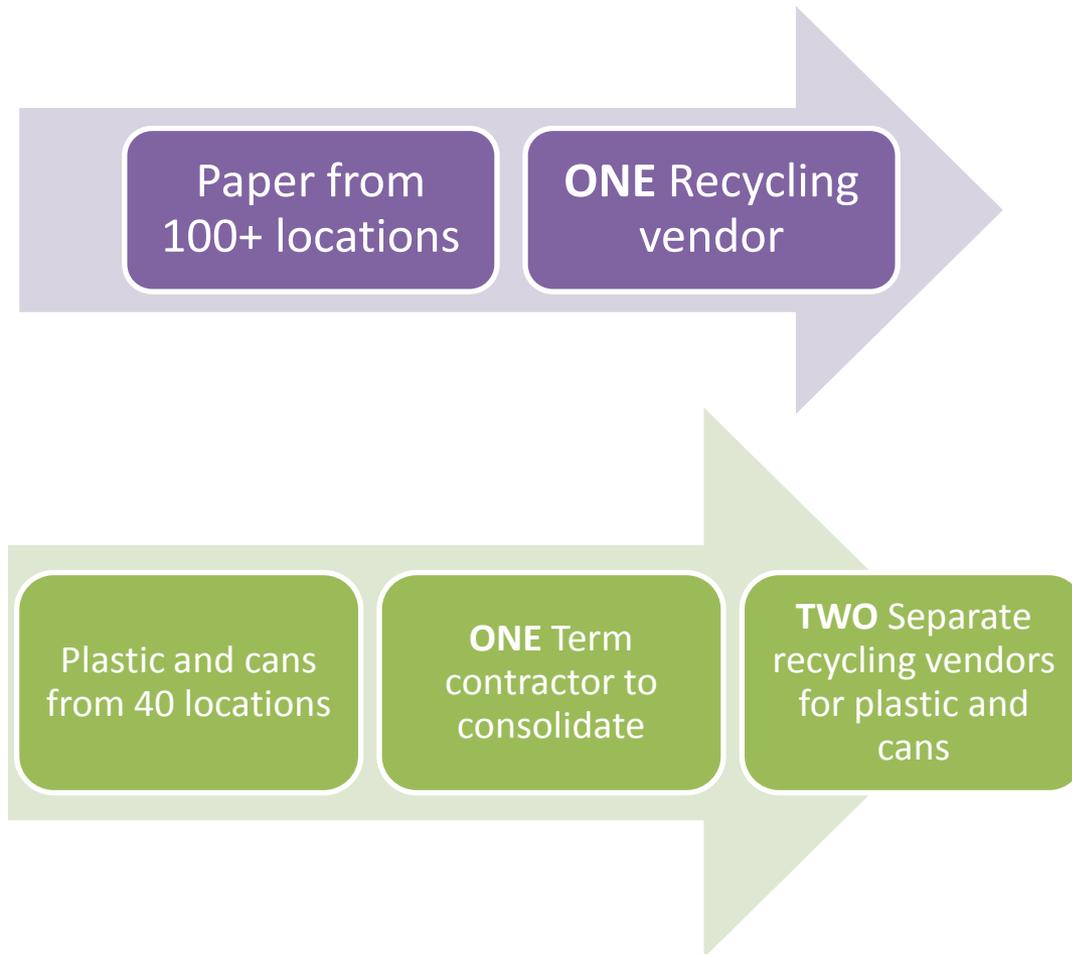
1. Spoke and hub System
2. Contract management

2. Contract inefficiencies – limited number of locations

Contract limit total number of locations due to logistics

- *NUS Admin cannot provide more recycling bins when users request!*

2. Contract inefficiencies – many parties to coordinate



- 1 paper recycling vendor
 - 1 term contractor to collect plastic/cans
 - 1 plastic recycling vendor
 - 1 cans recycling vendor
- = 4 coordinating parties**

2. Contract inefficiencies – economically unviable?

3 separate contracts for paper, plastic and cans

- *Plastic bottles worthless compared to paper and cans, which makes it very less economically unviable(?) to engage recycling vendor*

Solutions to logistic and contract issues

Spoke and Hub system
Contract Management

1. Spoke and Hub system

- Housekeeping staff to clear recycling points

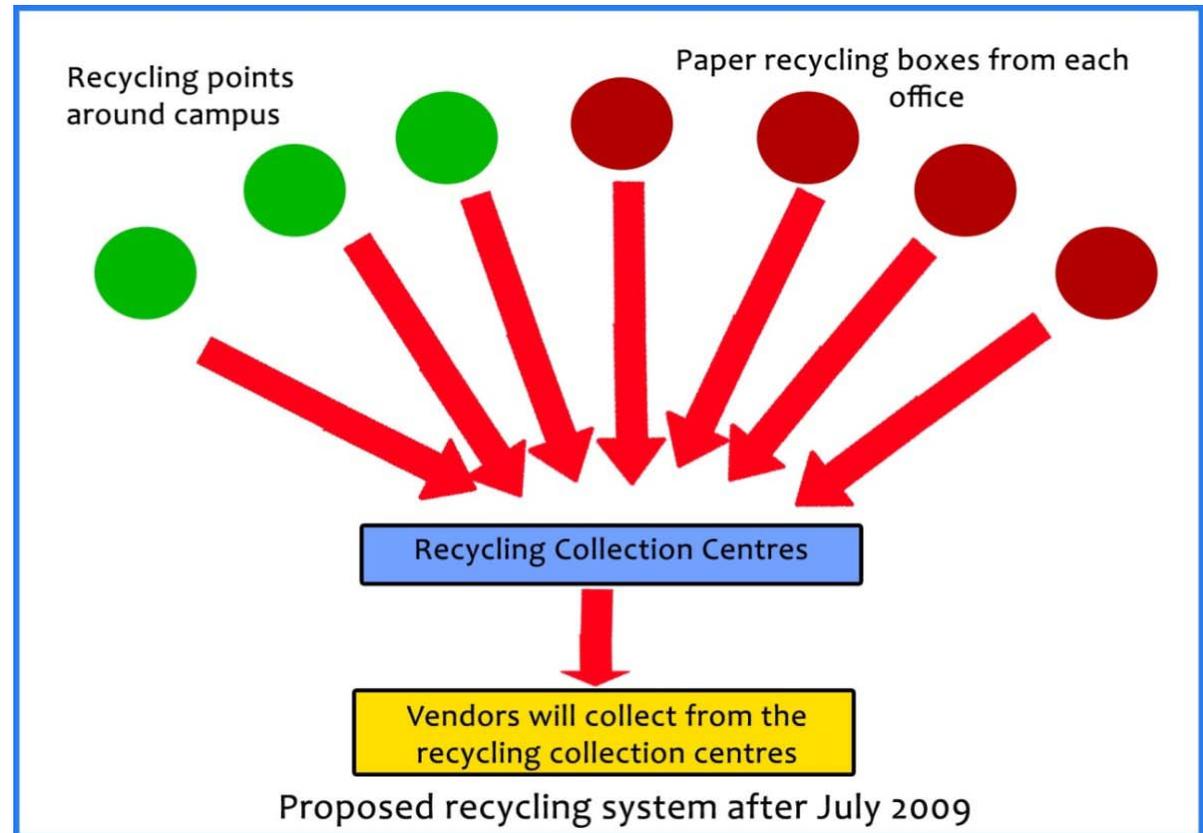
2. Combined contract

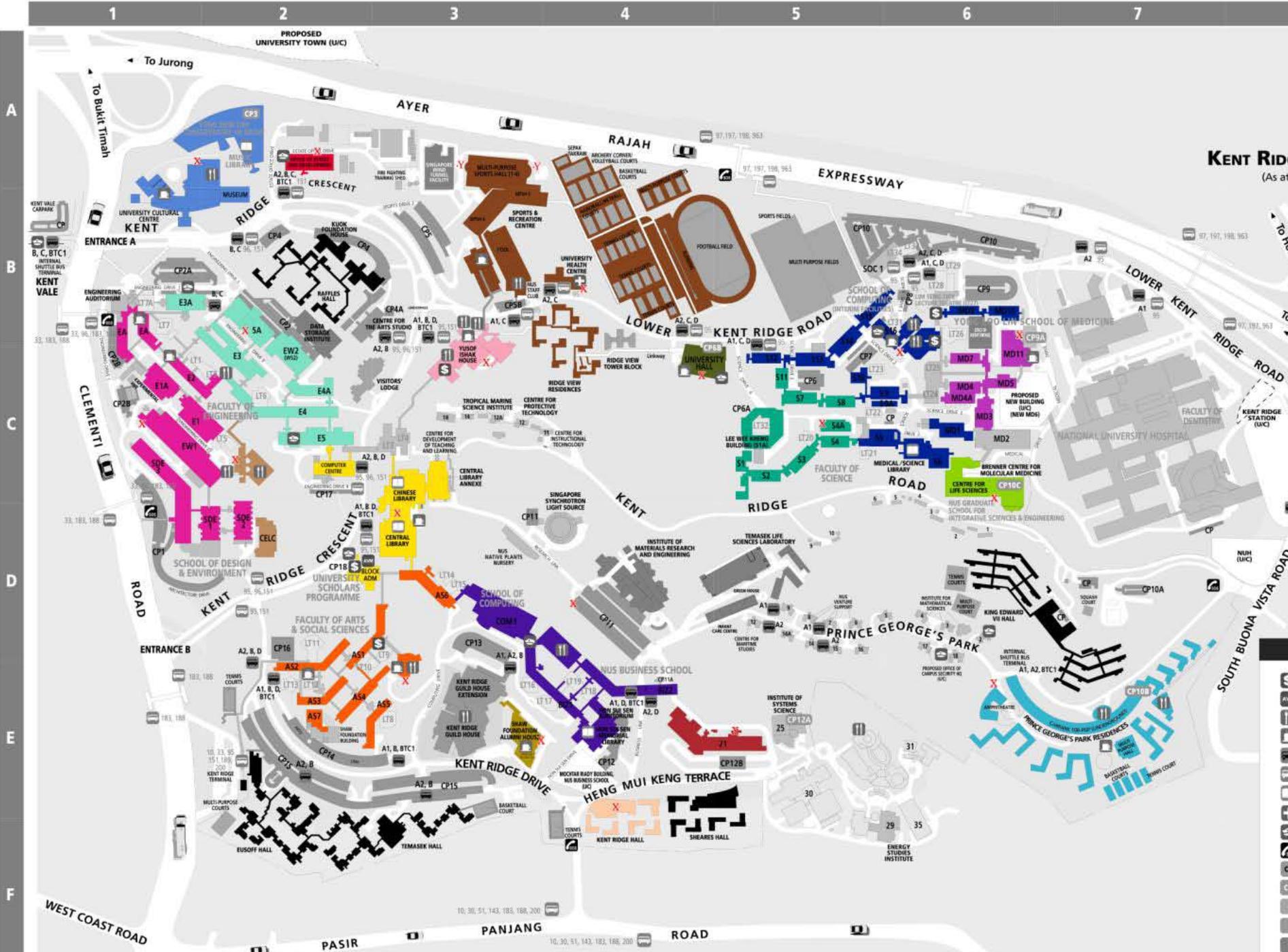
- Combine paper, plastic and cans recycling into a single contract

Current Collection System – Spoke and Hub

Process

1. Housekeepers remove recyclables while clearing trash bins to recycling collection centres (usually bins centres)
1. Recycling vendors collect from recycling collection centres





1 2 3 4 5 6 7

A

B

C

D

E

F

To Jurong

To Bukit Timah

PROPOSED UNIVERSITY TOWN (UCI)

AYER RAJAH EXPRESSWAY

RAJAH

EXPRESSWAY

KENT RIDGE

(As at 2011)

To Holland

To City Centre

To Kent Ridge Station (UCI)

To NUS

To Prince George's Park

To South Buona Vista Road

To NUS

To NUS

ENTRANCE A

ENTRANCE B

ENTRANCE C

ENTRANCE D

ENTRANCE E

ENTRANCE F

Buildings and Facilities: CP3, CP4, CP5, CP6, CP7, CP8, CP9, CP10, CP11, CP12, CP13, CP14, CP15, CP16, CP17, CP18, CP19, CP20, CP21, CP22, CP23, CP24, CP25, CP26, CP27, CP28, CP29, CP30, CP31, CP32, CP33, CP34, CP35, CP36, CP37, CP38, CP39, CP40, CP41, CP42, CP43, CP44, CP45, CP46, CP47, CP48, CP49, CP50, CP51, CP52, CP53, CP54, CP55, CP56, CP57, CP58, CP59, CP60, CP61, CP62, CP63, CP64, CP65, CP66, CP67, CP68, CP69, CP70, CP71, CP72, CP73, CP74, CP75, CP76, CP77, CP78, CP79, CP80, CP81, CP82, CP83, CP84, CP85, CP86, CP87, CP88, CP89, CP90, CP91, CP92, CP93, CP94, CP95, CP96, CP97, CP98, CP99, CP100, CP101, CP102, CP103, CP104, CP105, CP106, CP107, CP108, CP109, CP110, CP111, CP112, CP113, CP114, CP115, CP116, CP117, CP118, CP119, CP120, CP121, CP122, CP123, CP124, CP125, CP126, CP127, CP128, CP129, CP130, CP131, CP132, CP133, CP134, CP135, CP136, CP137, CP138, CP139, CP140, CP141, CP142, CP143, CP144, CP145, CP146, CP147, CP148, CP149, CP150, CP151, CP152, CP153, CP154, CP155, CP156, 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Review of Problems

Inefficient Collection System/Contract Inefficiencies

Irregular
Collection

Term
contractor to
consolidate
plastic/cans

Limited
number of
recycling
points

4 different
vendors

Economically
unviable (?)
plastic
recycling

Solutions to the respective problems

Spoke and hub

Regular collection by
housekeepers

As many recycling points
as trash bins

Removed Term contractor
to consolidate plastic/cans

In Essence, Spoke and Hub was crucial, 3 in 1 contract is optional.

3 in 1 contract management

Only 1 vendor to coordinate

More profitable paper and cans offset
collection of less valuable plastic

Conclusion: Everyone's efforts

Multi-disciplinary cross-cutting Recycling Task Force working together

- Office of Estate and Development - Contract administration, management of Housekeepers
- Students against Violation of the Earth – Contamination Surveys, Lecture Talks, Labelling stickers.
- OSHE and OES - Leadership, co-ordination