

# Use of green materials in maintenance and construction

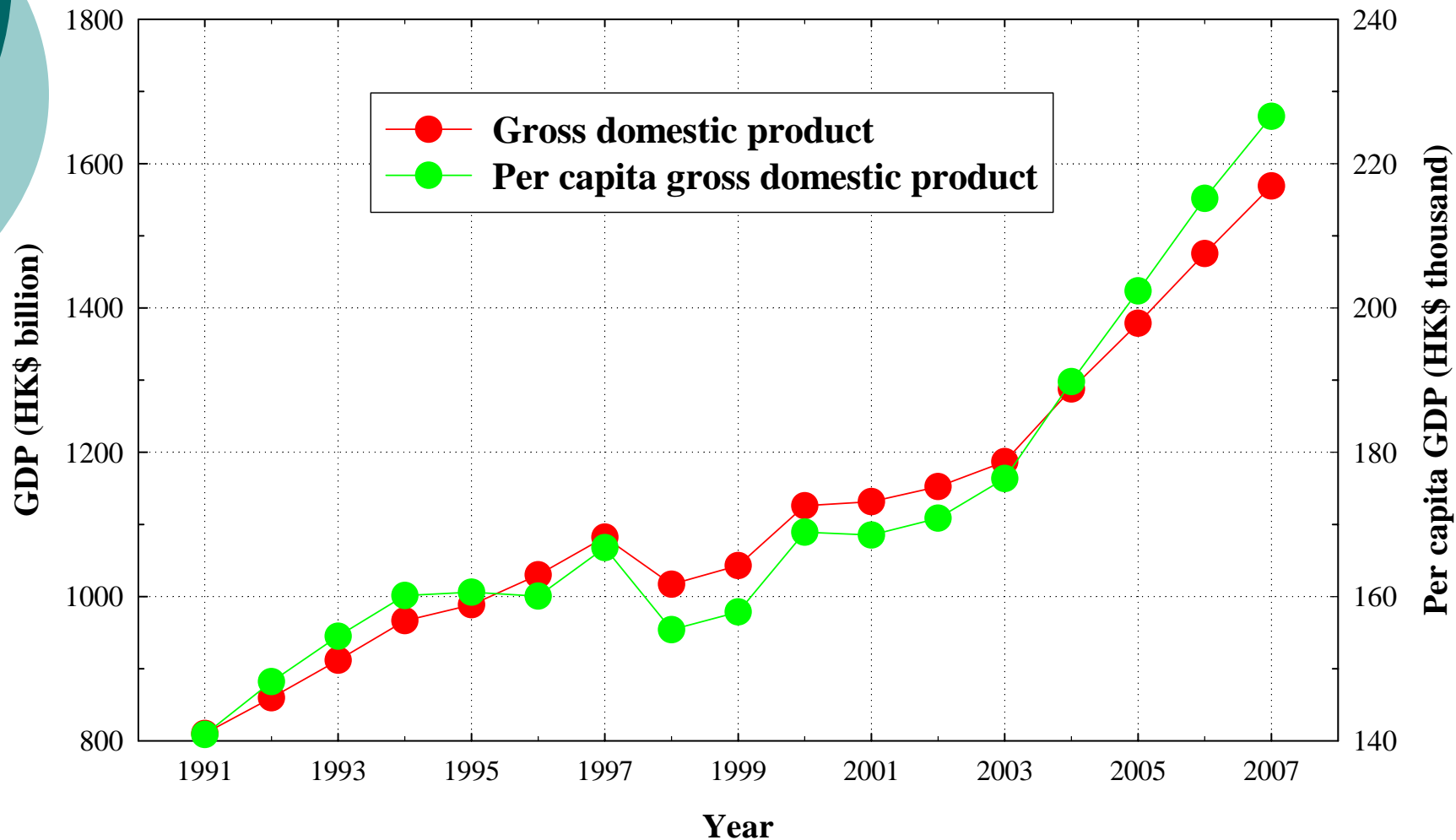
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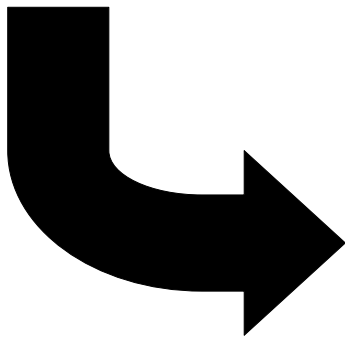
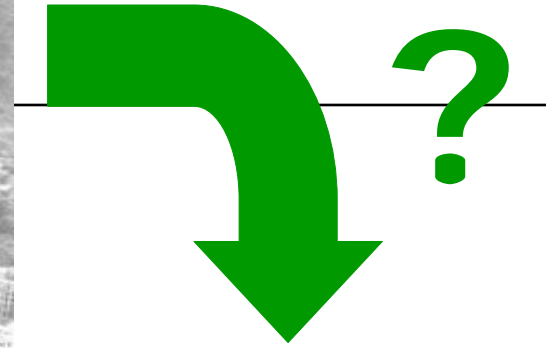


**Green Buildings: Better Quality of Life**  
**June 11, 2010**

# GDP and per capita GDP of HK



Construction & demolition



Construction &  
demolition





# Strategic Landfills in Hong Kong



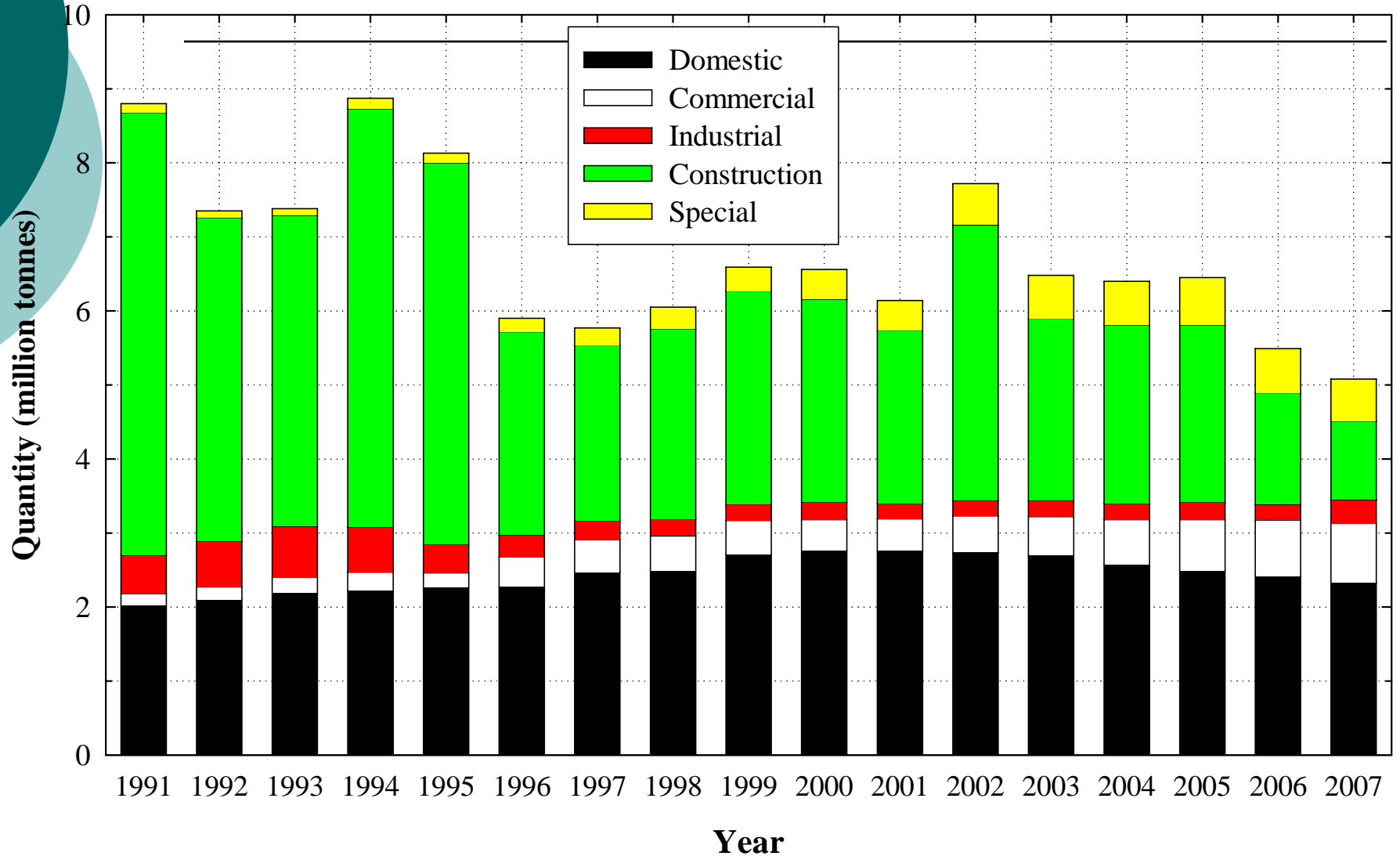
**North East NT Landfill  
at Ta Kwu Ling  
(NENT Landfill)**

**South East NT Landfill in  
Tseung Kwan O (SENT Landfill)**



**West NT Landfill at Nim Wan  
(WENT Landfill)**

# Solid Waste Disposal at Landfills



# Construction Waste

## *Site Clearance*



*Excavation*



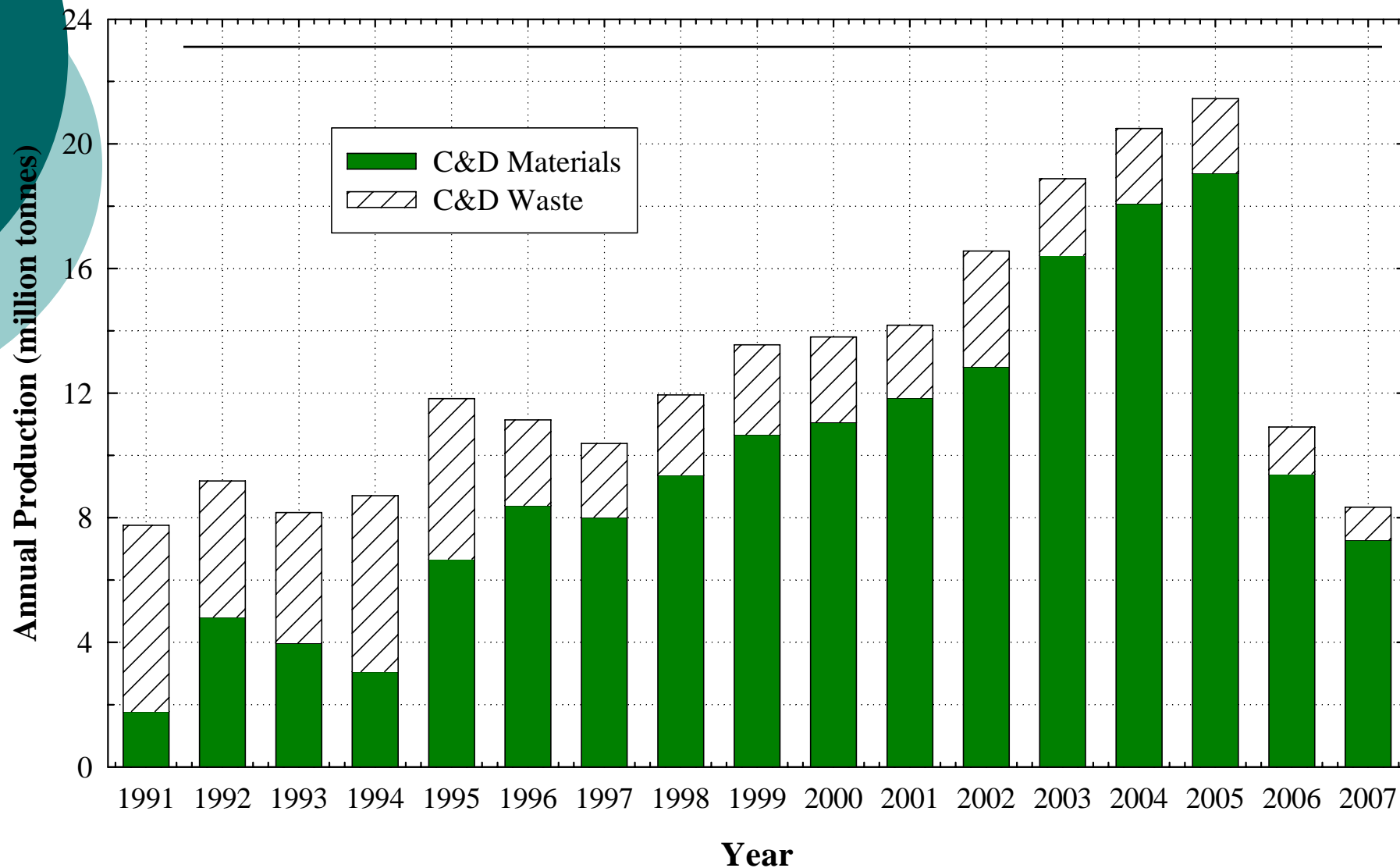
*Tunneling*



*Demolition*



# Annual Production Rate of C&D Materials



# 10 Mega Infrastructure Projects

## 十大基建上馬 創25萬職位

打通中港海陸空 年創富逾千億

二千五百億元項目 Total worth of HK\$250 Billion





## ① 港深河套區

- 與深圳設立一個高層協調機制
- 善用落馬洲河套區土地，應付日後發展



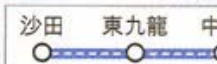
## ② 港深機場鐵路

- 研究發展連接香港機場及深圳機場的鐵路，兩地政府會成立聯合專責小組跟進，走綫未定
- 希望明年初擬定具體工作計劃



## ⑤ 沙中綫

- 估計造價約300億元
- 鐵路貫穿新界東北、東九龍及港島
- 預計2010年動工



## ⑥ 啟德發展計劃

- 進入落實階段，區內的郵輪碼頭首個泊位將於2012年啟用
- 發展局局長領導高層跨部門專責小組，確保計劃如期推展



## ③ 新發展區

- 恢復古洞北、粉嶺北、坪輦北、打鼓嶺及洪水橋新發展區的規劃及工程研究
- 應付人口增長的土地需求，規模不及屯門及沙田傳統新市鎮的四分之一
- 區內會提供住屋、就業、高增值及無污染工業，提供優質生活空間



## ⑦ 南港島綫(東段)

- 造價約70億元
- 創造約2萬個職位
- 連接現有港島綫及即將拍板的西港島綫
- 預計2011年動工、2015年竣工



## ⑧ 西九文化區

- 向立法會申請190億元撥款成立西九管理局
- 推動香港文化藝術長遠發展，支持香港成為經濟和亞洲國際都會



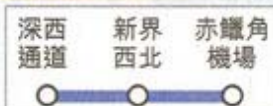
## ⑨ 港珠澳大橋

- 短期內完成財務研究及召開專家小組
- 連接香港、澳門及珠海，加強中港融合
- 預計造價逾600億元



## ⑩ 屯門西繞道及屯門至赤鱲角連接路

- 造價逾200億元
- 連接深西通道、新界西北及機場(當中跨海部分為隧道)
- 預計2016年竣工





# Solutions

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- Minimize the generation of construction waste
- Re-generate useful materials from demolition waste



# Objectives

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- **Promote sustainability of our society**
- **Prolong the useful life of infrastructure constructed**
- **Reduce the maintenance and construction costs**
- **Reduce maintenance frequency**
- **Reduce maintenance and construction time**
- **Reduce construction hazards and nuisance**

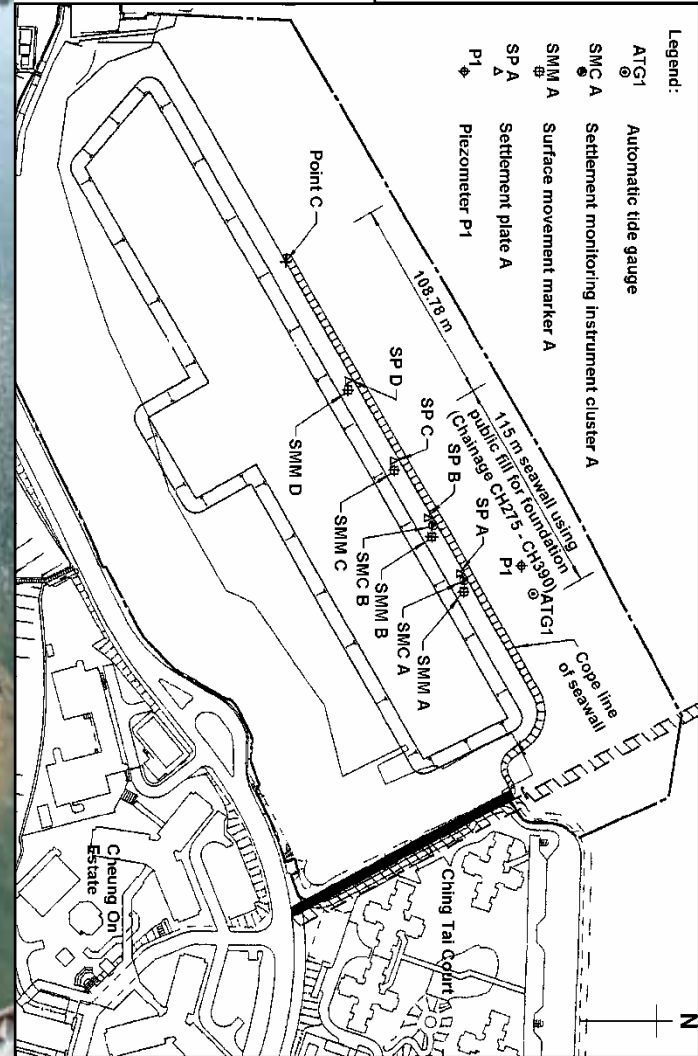
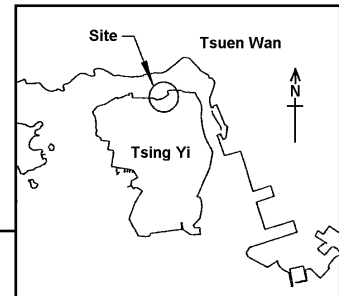


# Recycling of Waste Materials





# North Tsing Yi Reclamation



# Tuen Mun Area 38 Stage 2 Reclamation



**33 hectares**  
**36 million m<sup>3</sup>**





# C&D Material Recycling Facility at Tuen Mun Area 38





# Road Curbs

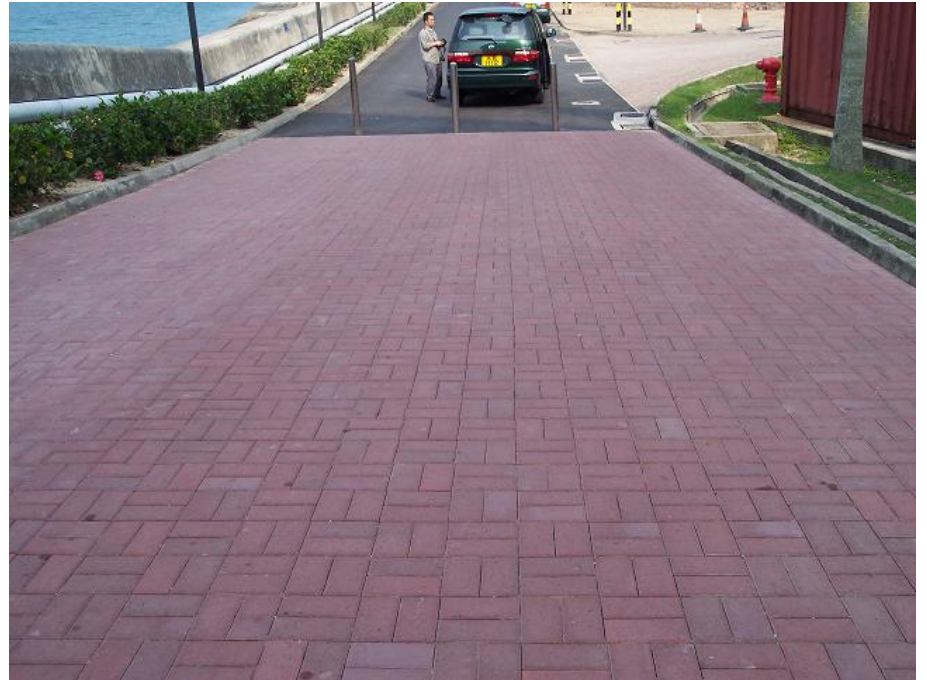




# Road Bricks: Examples



**PolyU**



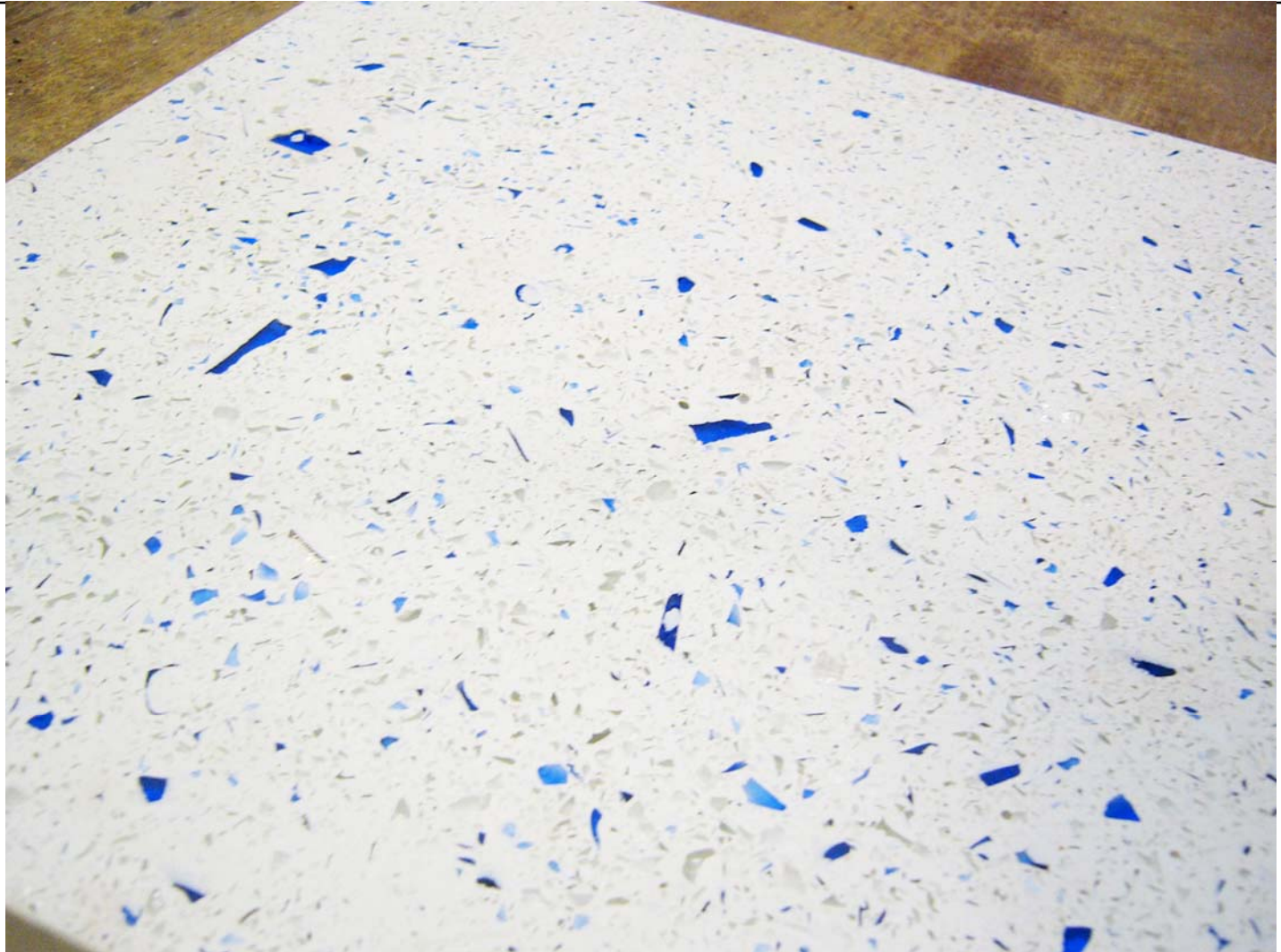
**HKUST**

# Recycled Glass





# Terrazzo Tiles



# Recycled Wood

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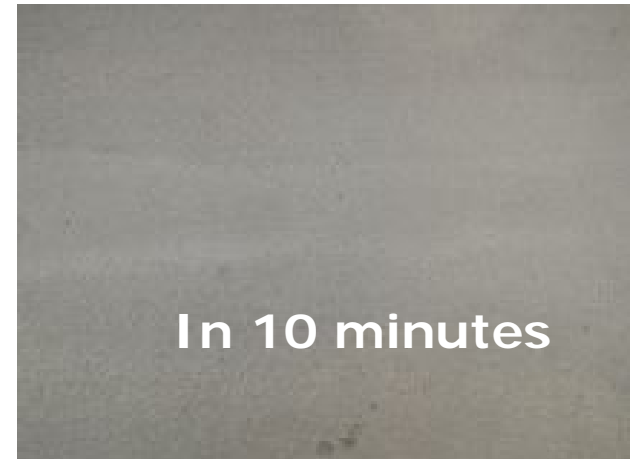




# Recycled Wood

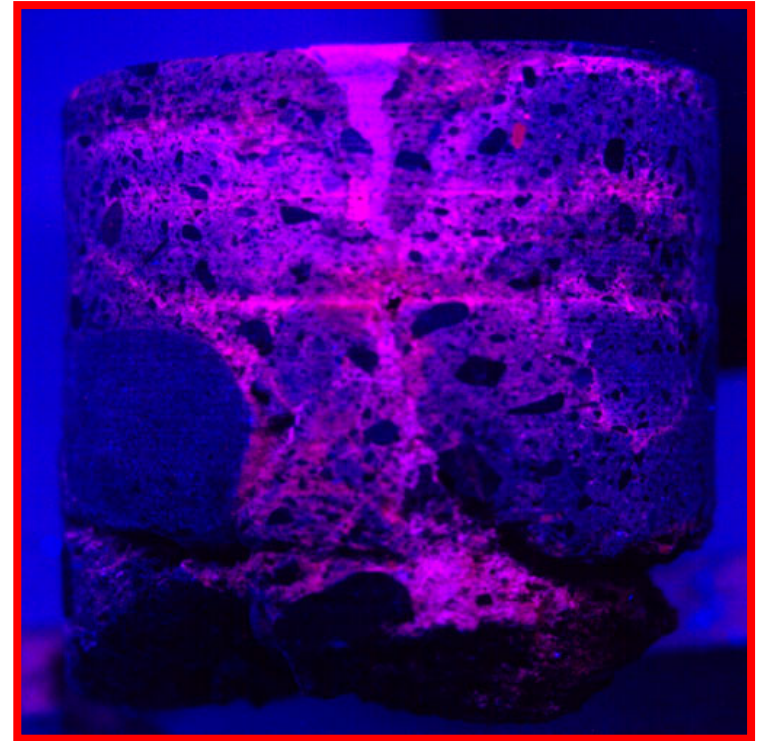


# Road Repair



# Penetrating Power

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# Waterproofing

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- **Remove the old existing roof or wall tiles**
- **Remove the bitumen-base waterproofing layer**
- **Re-apply the bitumen-base waterproofing layer**
- **Re-install the roof or wall tiles**



# New Green Material

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# Roof Waterproofing

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# Waterproofing with Reflex Topcoat

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**Before**

**After**





# External Wall



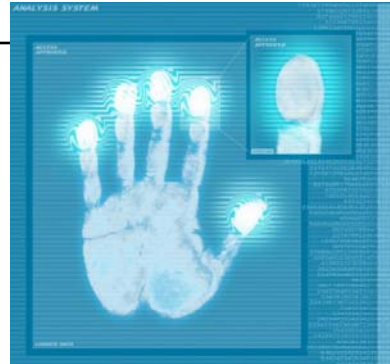
BEFORE



AFTER

# *FingerMap*®

- Mobile biometric authentication system
  - Mifare® card reader
  - Radio-frequency fingerprint sensor
  - Life recognition
  - GPS
  - Local time





# Conclusions

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- **Green materials are now available on the market for construction and maintenance of infrastructures**
- **Utilization of modern technologies can enhance our sustainability**