# Professional Futures: Ethics and Sustainability

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# Sustainability and Ethics.....the link

**Sustainability : The Bruntland report 1987**

- *"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:*
- *the concept of **needs**, in particular the essential needs of the world's poor, to which overriding priority should be given; and*
- *the idea of **limitations** imposed by the state of technology and social organization on the environment's ability to meet present and future needs."*

http://conspect.nl/pdf/Our_Common_Future-Brundtland_Report_1987.pdf

**Ethics: The choices we make as Individuals**

- *Moral choices and being responsible for these and the affects they may have on other human beings and the environment*
- *Individual views and feelings on issues and our own decisions.*
- *Is it our responsibility to think about others or to think about what is best for ourselves?*

# My own view – ethical stance.... Teleological approach

## What is this?

- Also known as Utilitarianism and Consequentialism

- Based on the concept that all actions should bring the greatest good for the greatest number. (The Brundtland report 1987?)

- Actions that produce more benefits than harm are ‘right’ whilst those that don’t are wrong.

# A Question.....

What is the second most consumed material in the world after water?

# Answer...Concrete!

http://wbcsdcement.org/pdf/CSI-RecyclingConcrete-Summary.pdf

# I have strong ethical views on recycling materials

- How we build our homes.
- Our waste and pollution.
- Our jobs and how we work.
- Sustainability issues are included in qualifications I deliver.
- The current practice within the organisation strives to be sustainable. This can be improved further but problems may arise as a result of clashing ethical views/time constraints and space on site to store recycled material

# The issue

- Surface foundation materials and general waste concrete materials continuously removed from the college site

- New surface foundation material continuously delivered to site

This makes no sense!!!

# The Issue

• Increased C02 from transportation of material away from site

• No guarantee that concrete removed from site in this manner will be recycled. It may go to landfill.

•If the material is not recycled is does nothing to lower the C02 footprint created by the production of the cement used to create the concrete

• This method requires collection or delivery of aggregate to serve as a sub-base material that increases the impact on the local environment.

# The issue:
# Current quantities and costs....

- 94.43 tonne of concrete and building waste removed from the college site in the last year
- 11 collections made at an average cost of £297.50 per collection
- Approximate cost of waste collections =

  £ 3272.50

Average cost of each tonne of building waste removed from site = £34.65 per tonne

# The answer....


Reversible jaw action
Instant Hydraulic jaw adjustment
(Choice of output from 5mm up to 70mm)
400mm x 170mm jaw aperture
Removeable
battery
isolator
Output conveyor as standard
AMAZING
GREEN
CRUSHING
MACHINES
U-CRUSH-IT Mobile Mini Crusher Hire
www.u-crush-it.co.uk
01335 390003
Quick release hydraulic coupling
(for additional Conveyor Mounted
Screener attachment)
Dust Suppression fitted as standard
Powerful 14hp water
cooled diesel engine
single toggle jaw crusher with 14%
manganese steel 'reversible' jaw plates

# The benefits:

- Reduced transportation costs and C02 released through transportation of new sub-base material to site

- Reduced waste away from site which reduces C02 from transportation

- Reduced inert concrete going to landfill

- Reduces carbon foot print of the production of cement used to create concrete through the recycled use of the material,

# Will it be the cheapest option in the longer term?

YES

# The answer
# The savings and lower impacts....

- £594 inc VAT for 3 days hire would crush the material removed from site in the last year
- No further purchase of sub-base material from local quarries would be required unless needed for teaching purposes
- Reduced transportation of materials=lower C02 released

Reduced short term costs of approximately:

**£2678.50 per year**

Will the long term cost far outweigh the short term value?

# No....

- Improved embedding of sustainable practice in practical qualifications
- Improved education of learners
- Money continuously saved by improved practice
- Less impact on local finate material production sites
- Continued reduction of the C02 impact of cement production through recycling of the concrete material

# Cement and concrete institute report 2011 stated that…

"The use of recycled concrete as an aggregate will further reduce the CO2 of the concrete and at the same time reduce the depletion of natural resources and the dumping of old concrete at landfill sites."

http://www.cnci.org.za/Uploads/Sustainability%20web.pdf

# The cement sustainability Initiative "Recycling concrete" executive summary stated that:

- **"Recycled concrete can be better than virgin aggregates for some applications"**
- **"Using recycled aggregate reduces land-use impact"**

http://wbcsdcement.org/pdf/CSI-RecyclingConcrete-Summary.pdf

# A sustainable method...

| Requirement | | Non-Crusher Scenario | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Waste Disposal (existing concrete to be removed from site) | Material Imported (crushed concrete delivered to site) | Number of skips | Cost of skip | Total skip cost | Crushed concrete cost per tonne | Crushed concrete total cost | Total cost | Total cost including VAT |
| 7 tonne | 7 tonne | 1 | £160 | £160 | £12 | £84 | £244 | £293 |

| Requirement | | Crusher Scenario | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Waste Disposal (concrete to be crushed) | Material Imported (recycled crushed concrete) | Crusher capacity of tonnes per day | Days required | Cost per day | Total cost | Total including VAT | **Savings** | **Savings including VAT** |
| 7 tonne | 7 tonne | 40 | 1 | £165 | £165 | £198 | **£79** | **£95** |

http://www.u-crush-it.co.uk/cost_savings.html

# The possible savings, both financially and environmentally in the short term

- £13.57 saving per tonne using this method
- So for a 1 day hire with a maximum efficiency of 40 tonnes per day processed, a projected saving of £542.80 could be made
- Less impact on the environment caused by less mining of resources and transportation costs

# References


http://conspect.nl/pdf/Our_Common_Future-Brundtland_Report_1987.pdf Accessed on 01/11/2012 at 09:15

http://www.cnci.org.za/Uploads/Sustainability%20web.pdf accessed on 01/11/2012 at 10:45

http://wbcsdcement.org/pdf/CSI RecyclingConcrete-Summary.pdf accessed on 01/11/2012 at 11:03

http://www.u-crush-it.co.uk/cost_savings.html
Accessed on 03/11/2012 at 11:33

# Questions....