WASTE MANAGEMENT PRACTICES IN CONSTRUCTION PROJECTS IN KENYA

PRESENTATION BY:

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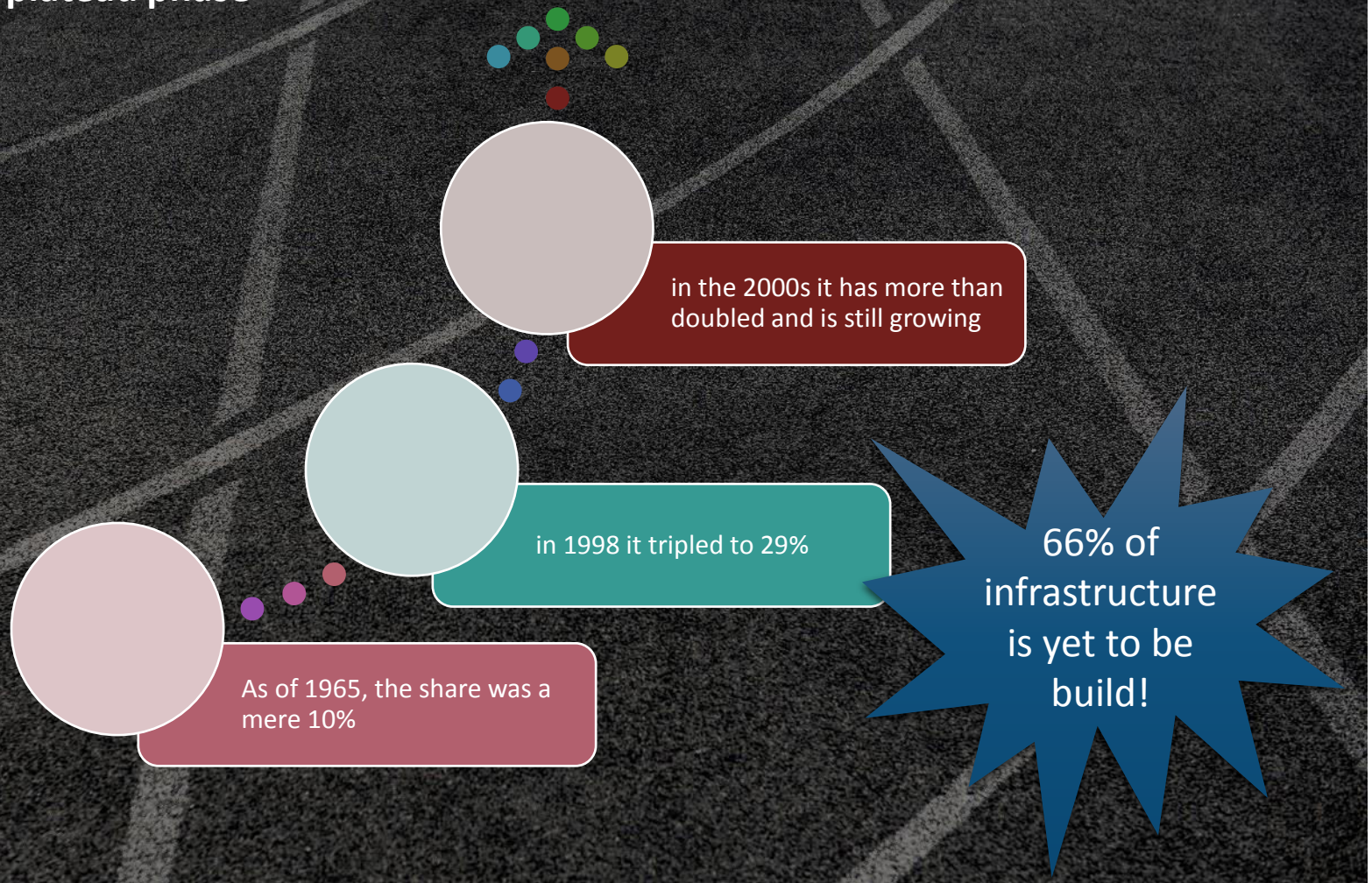
Introduction

The global share of the construction industry in the developing nations is growing and far from the plateau phase



Introduction ctd... Growth Indicators in the Construction Industry in Kenya

YEAR	GROWTH RATE %	TURNOVER IN MILLIONS (KSH)
2012	4.8	190,851
2013	6.1	213,565
2014	13.1	262,090
2015	13.9	309,046
2016	9.2	359,565

Fig. 1: Economic Survey 2012-2017 Source: (KNBS, 2017)

9.2% Growth/expansion

GDP value added-50.% in 2016

-> Cement consumption increased by 5.6 %

-> Private Building completion rate increased by 9.2%

-> Public Building Completion rate increased by 18.9%

Formal employment in the sector grew by 9.6%

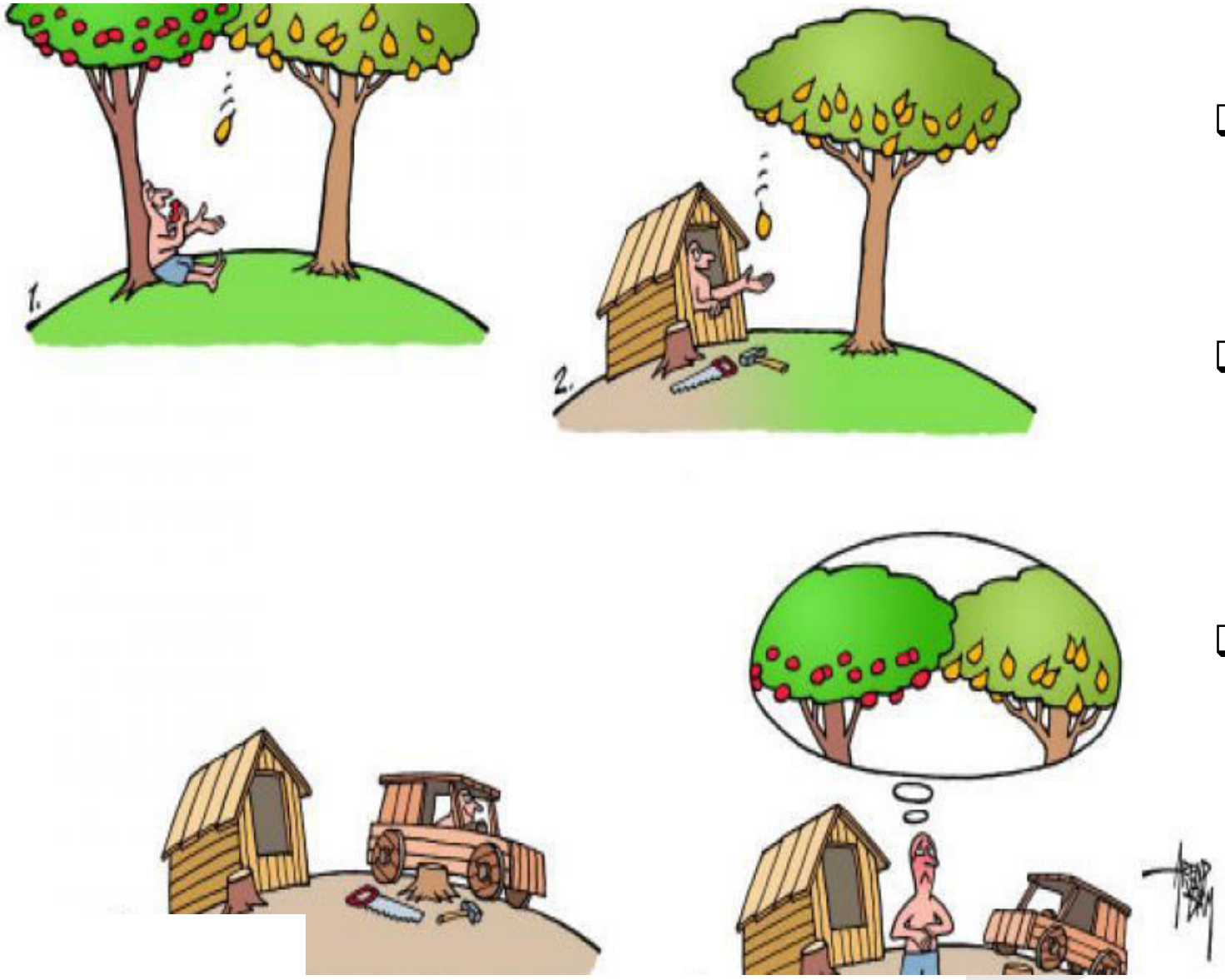
An increase in employment in the sector from 148.6 thousand jobs in 2015 to 163.0 thousand jobs in 2016..

Total development expenditure growth projected-31.7%

from KSh 87.8 billion in 2015/16 to KSh 115.6 billion in 2016/17.

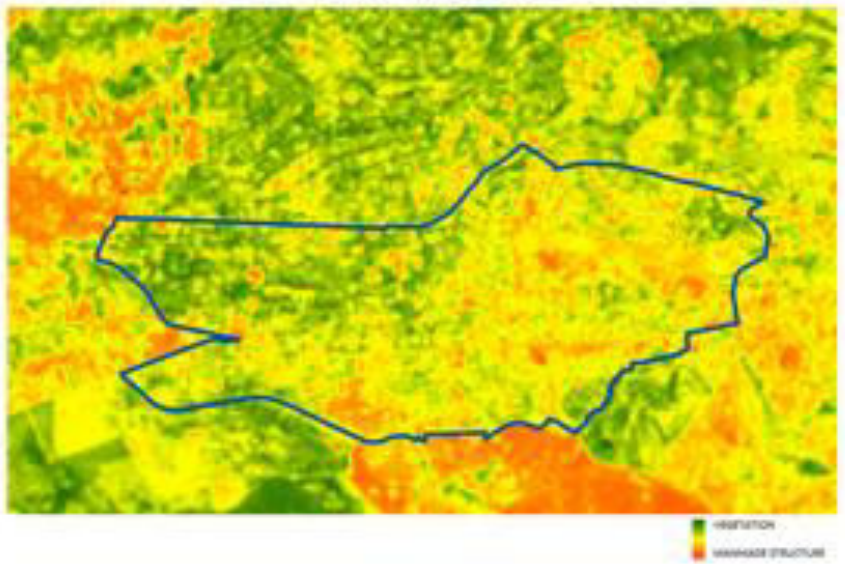
Government expenditure on roads increased from 113.2 in 2015/6 to 156.5 in 2016/7 to support projects being undertaken during the year

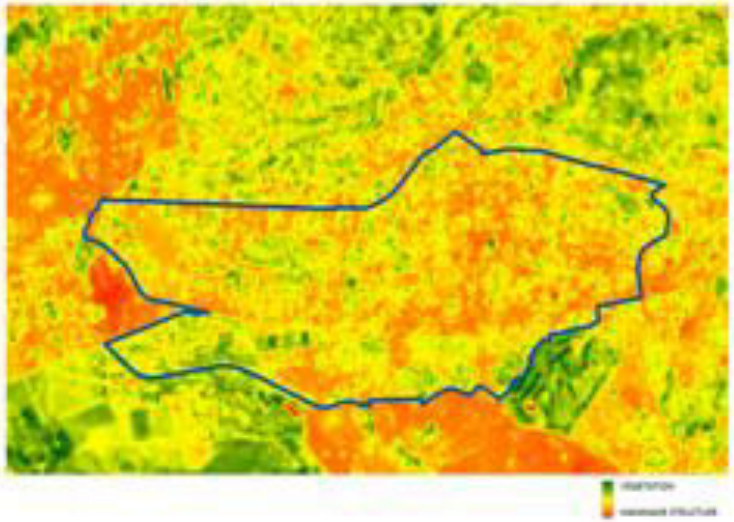
Problem statement



- Economies of Developing nations are heavily natural capital dependent
- There is an oversized and growing carbon footprint which is attributed to the construction industry's large materials' appetite
- Continued unsustainable practices shall "burden future generations with a legacy of high-carbon stranded assets" (Wreford, 2012).

Problem statement ctd...





Source: County Government of Nairobi

1976, Nairobi seen to be away from the park.

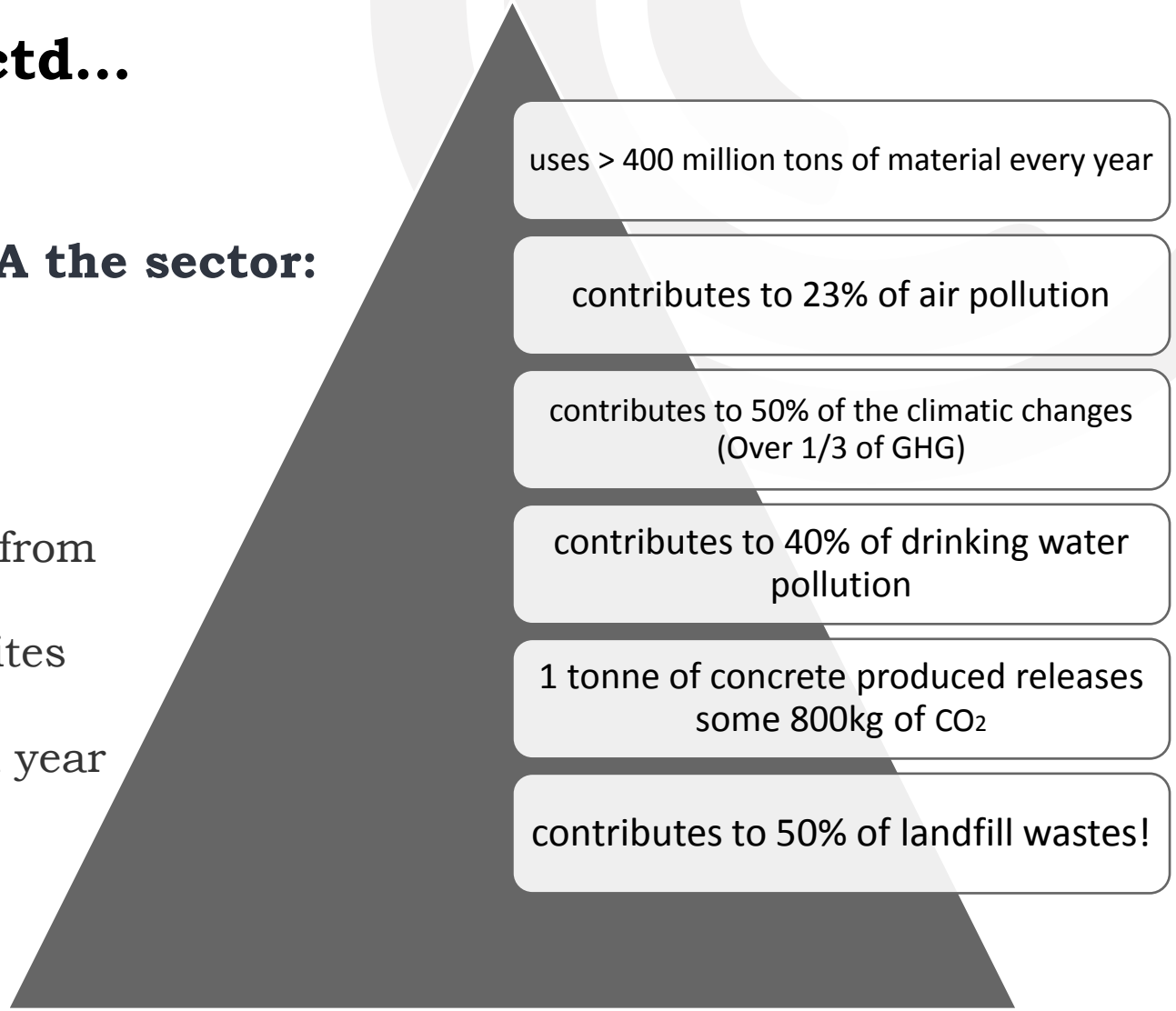
2005, Nairobi urbanization extends towards the park

Source: UNEP

Problem statement ctd…

According to EPA the sector:

- ☹ 260 million tonnes of waste are generated from civil engineering works
- ☹ 48 million tonnes of waste from building sites each year
- ☹ 40% of all materials transported in a given year are construction materials



The construction industry is leaking carbon like a sieve!!!

Problem statement ctd...

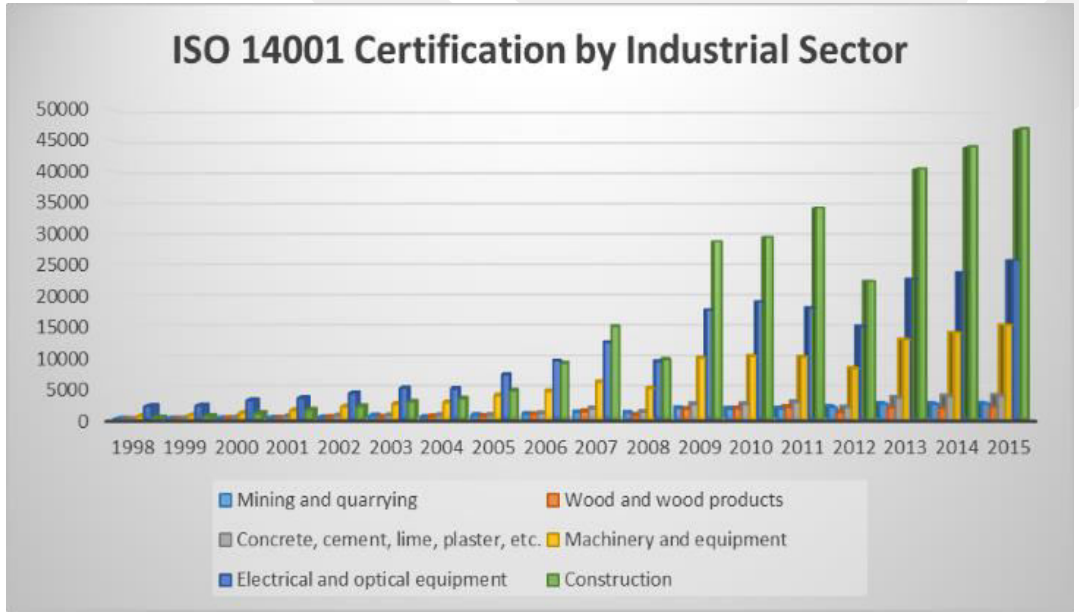
STUDY

Global Construction Waste generation statistics

Table 1.1: Percentage of waste that corresponds to construction activities at different disposal sites

Country	C&D waste (% by weight)	Reference
Netherlands	26	Bossink and Brouwers, 1996
Hong Kong	44	Hong Kong EPD, 2000
England and Wales	42.2	Lawson and Douglas, 2001
Kuwait	15-30	Kartam et al., 2004
Taiwan	15-20	Taiwan EPA, 1999
USA	20-29	Bossink and Brouwers, 1996; Mincks,1994; Peng et al., 1994; Rogoff and Williams, 1994; Apotheker, 1990
Australia	20-30	Craven et al., 1994
Germany	19	Brooks et al., 1994
Finland	13-15	Heino, 1994
Japan/Tokyo	57	Kennedy et al., 2007
Worldwide	13-29	Bossink and Brouwers, 1996

Abarca-Guerrero, L. (2014)



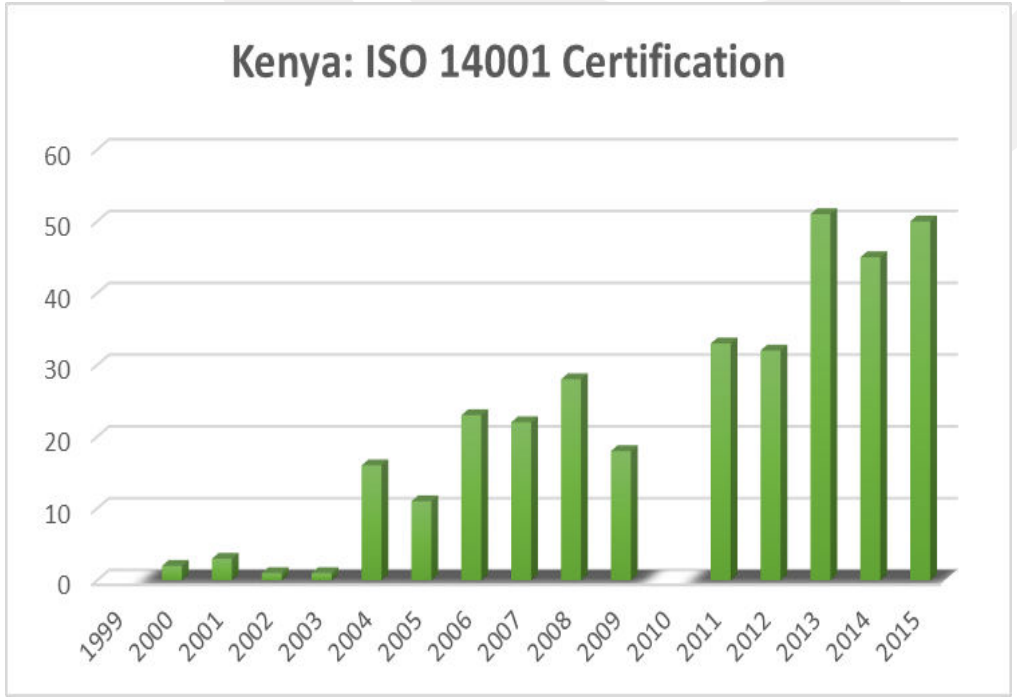
Data source: ISO survey of certifications

Construction VS Sustainability

- 2016- Kenya ranked 120th in the country SDG index and 123rd in the environmental performance index.

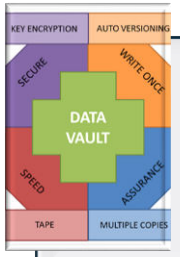
- 2015-Kenya had 50 firms (not necessarily in the construction sector) with ISO 14001 certification as compared to 656 institutions certified with ISO 9001 in the same year.

- Kenya has less than 1% of all ISO 14001 certifications compared to peer nations. In 2015, South Africa had 1,192 certifications, Egypt had 850, China 114,303, Malaysia-2,402, Singapore-1,630, Rwanda 1 and Nigeria 59…



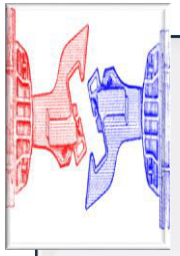
Data source: ISO survey of certifications

Justification



DCs lack inadequate and inaccurate data for the development of construction waste management systems.

The industry faces barriers blocking it from fabricating materials and structures which result in less production of waste



Sound and practical management of environmental matters cannot be decoupled from enterprise risk management.

Therefore, corporate governance in construction firms needs to adopt responsible resource consumption and production for overall sustainable growth and development.

Study objectives

Anecdotally there is poor construction waste management in Kenya

Overall objective:

This study evaluated the level of fusion of business and environmental goals in the construction sector in Kenya

Specific objectives:

- Characterize the waste management systems in construction projects in Kenya
- Establish the factors (barriers and drivers) that influence the performance of the sector in waste management.

Methodology

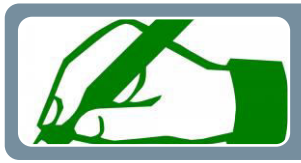
On-site visits were conducted to diverse construction sites.

Various practices on collection methods, segregation, selection of materials for reuse and recycling as well as ultimate disposal were noted.

a standard survey with structured and open ended questions was used as the survey tool.

A detailed literature review enabled identification of waste management barriers and drivers.

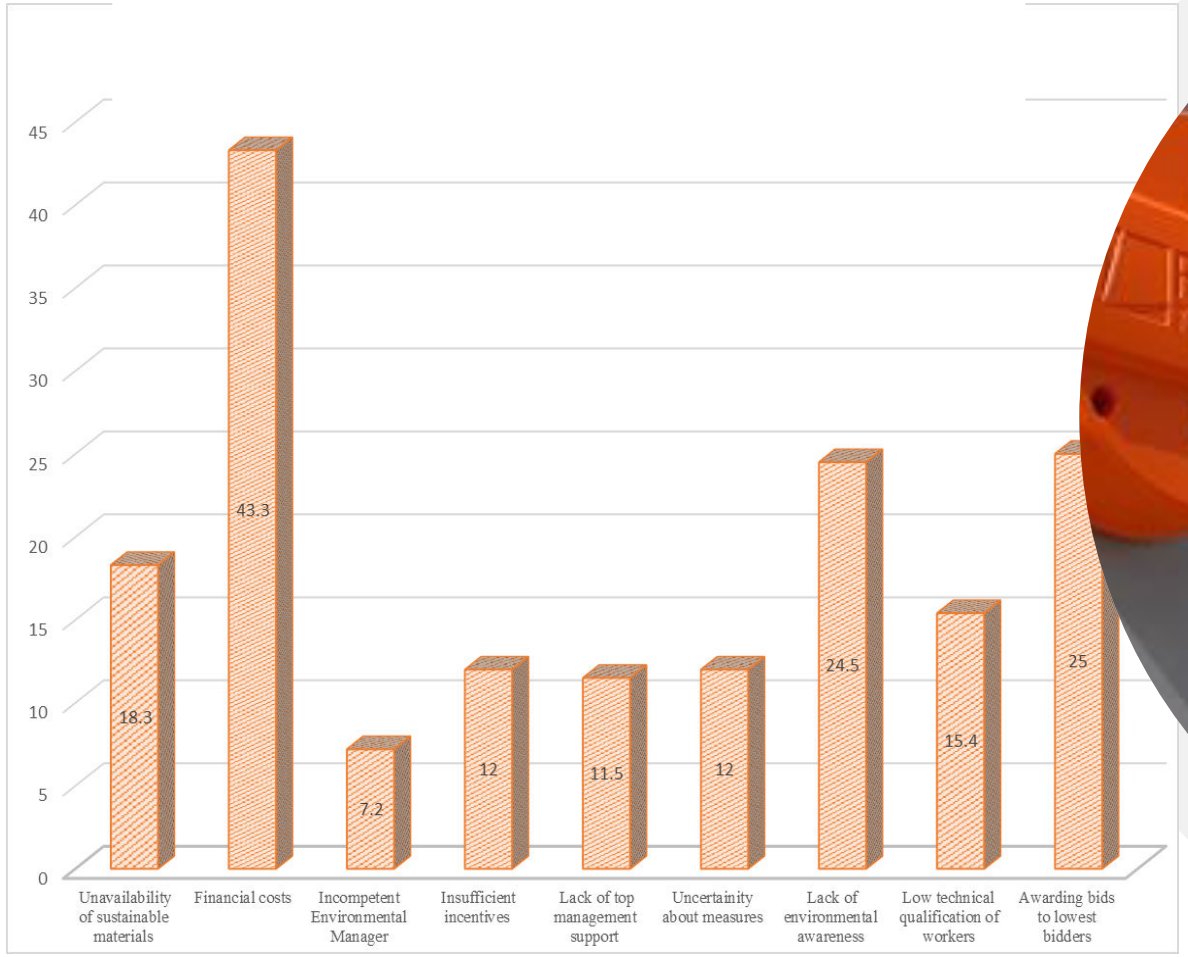
Questionnaires assessing the indicators were administered to 480 contractors, engineers, architects, quantity surveyors, construction firms, project managers and construction managers.



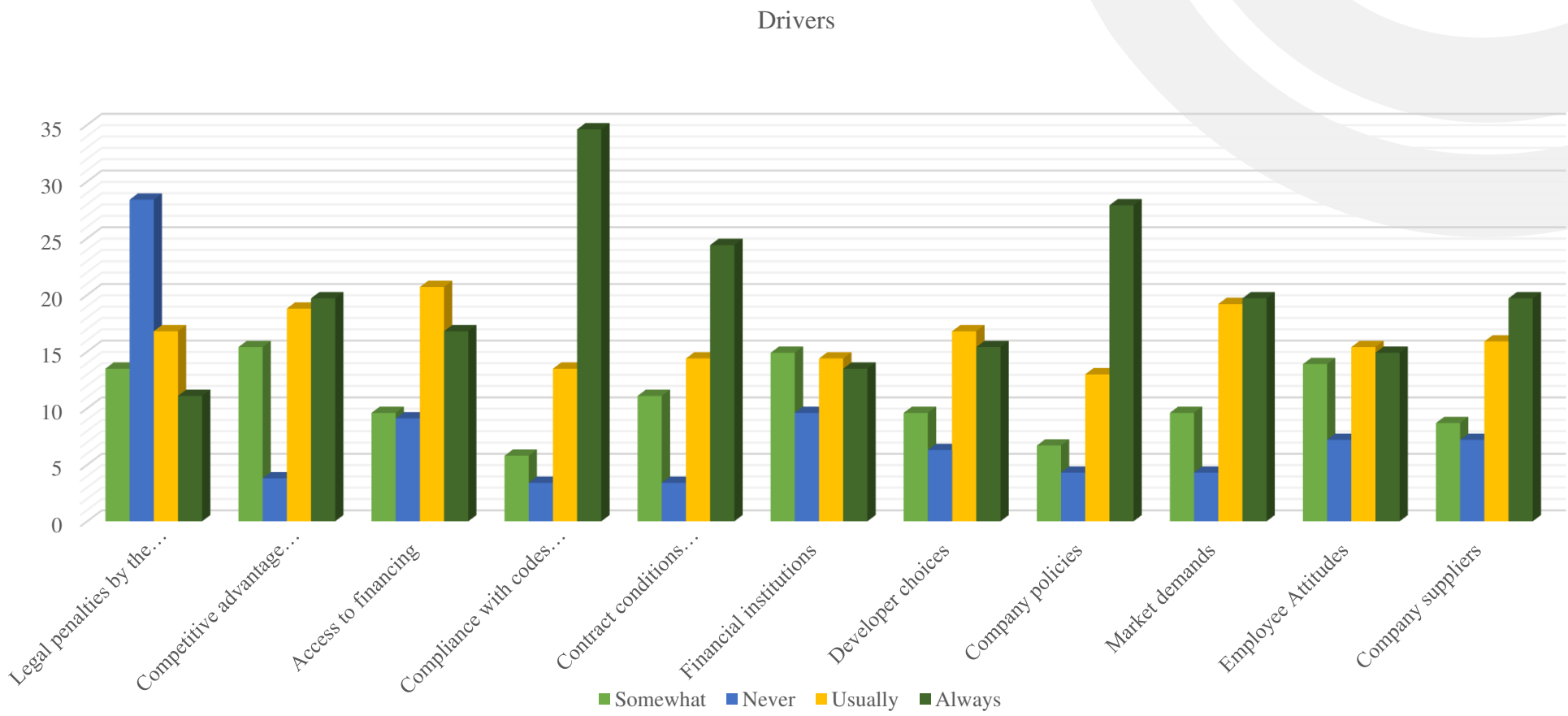
357 questionnaires were duly filled and collected yielding a response rate of 74.3%.

These findings gathered were analysed and the evaluation informed the conclusions on waste management in construction projects in Kenya.

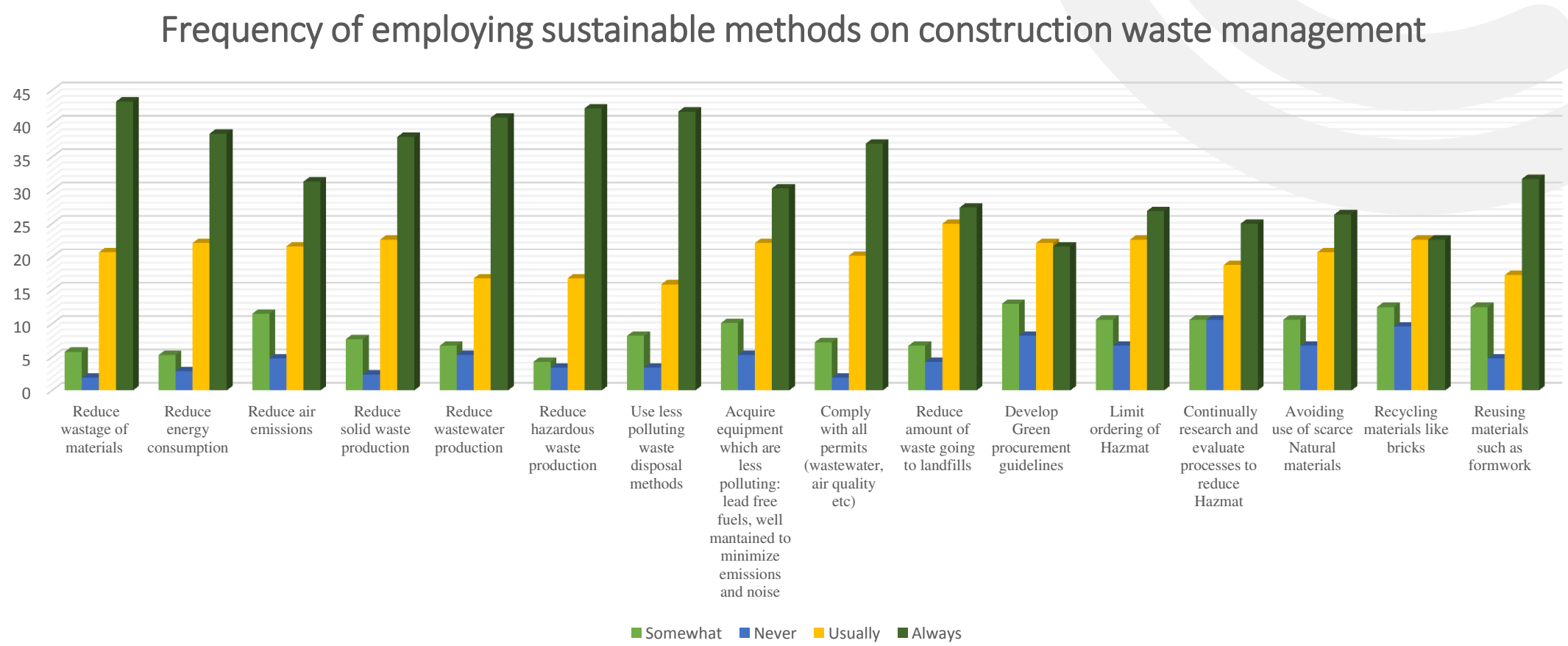
RESULTS: Barriers



RESULTS: Drivers



RESULTS: Waste management practices



CONCLUSION

Adoption of sustainable waste management systems is minimal and speckled in the construction sector in Kenya is likely to stall or remain retarded without strong inclusive policy and legal framework to back the movement

Stipulations in country policies are entry level as far as environmental management systems is concerned, nonetheless, aspirations to environmentally sound, resource efficient projects is extremely low.

Pockets of leadership are witnessed in various projects mostly due to strict policies by international funders

Waste management systems are set out broadly in local regulations but full scale implementation is lacking in many projects.

Environmental stewardship is not seen to be part of quality service provision.

Most construction firms and property developers are driven by short term cost-benefit considerations

There is need to promote fusion of environmental and business objectives in product and service design in the construction sector in Kenya

Perceptions of environmental sustainability as a soft issue and political interference in addressing environmental issues is to blame and worrying for DC economies as we are natural capital dependent.

Recommendation

There is an opportunity for success

Standardization, Sticks and Carrots

Dematerialisation

Education and awareness

.

✍To accelerate uptake and support environmental conservation, integration of EMS with quality management systems as well as health and safety is key rather than doing them separately

TEAM

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Thank You!

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