

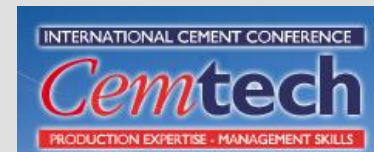
CEMENT AND CLINKER TRADE MARITIME LOGISTICS AND TECHNOLOGY IN AFRICA AND THE MIDDLE EAST

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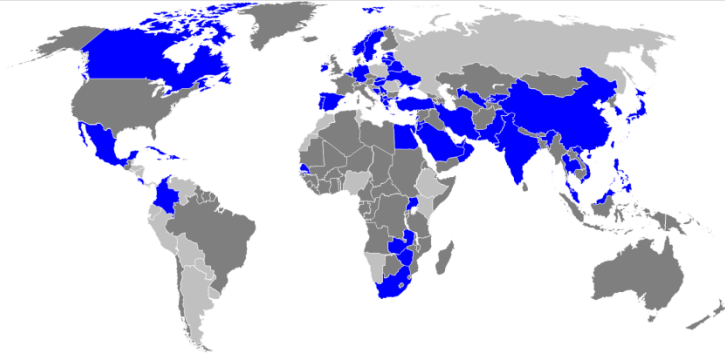
Cement Distribution Consultants



11-02-2013



CONTENTS OF PRESENTATION

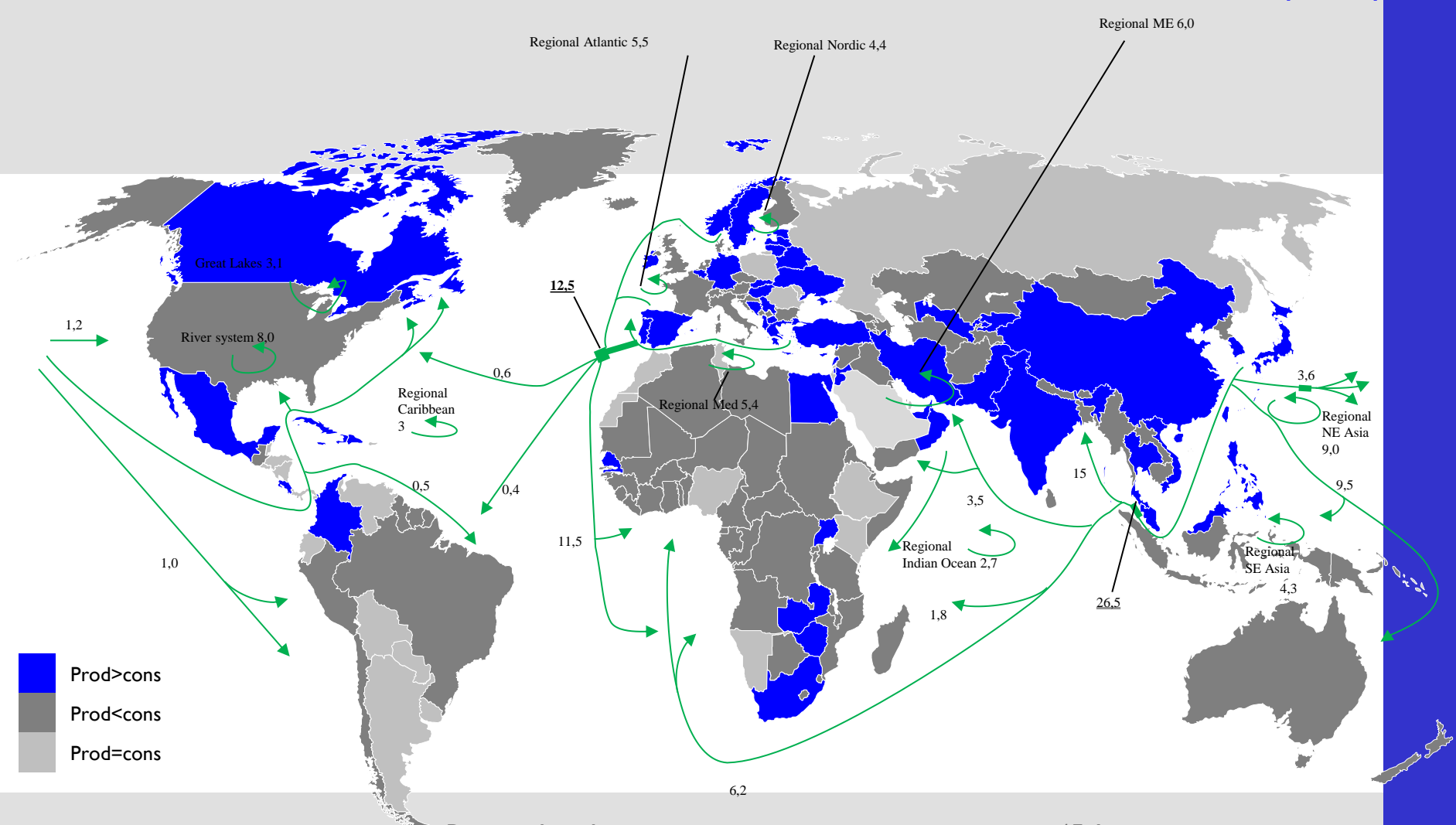


- Overview of trade flows
 - Global trade flows 2012
 - Trade flows around Africa
 - Trade flows around the Middle East
- Overview of maritime logistics and technology
 - Shipping methods
 - Port facilities
- New developments
 - Discharging ships without a dock
 - Modular, movable, low cost, grinding plants and terminals
 - Super efficient cement carriers

Cement Distribution Consultants an introduction

Market knowledge	Consulting	Project / interim management
<ul style="list-style-type: none">• The global cement industry on Google Earth• Large database on waterside cement plants, waterside grinding plants and terminals• 30 Years experience	<p>Logistical, economical and technical services</p> <ul style="list-style-type: none">• Feasibility studies of complete logistical chains for trade and distribution• Shipping solutions• Development of new facilities• Terminal and equipment design	<p>Realising and managing projects</p> <p>Examples</p> <ul style="list-style-type: none">- Redevelopment of large “brown field” bulk terminal- Temporary cement and fly ash import project for construction of large concrete dam

2012 Global seaborne cement and clinker trade flows (est.)



Regional seaborne exports	45,1 mt
Global seaborne exports	51,3 mt
Waterborne domestic distribution	106 mt (excl. China)
Total	202,4 mt

From Europe 11,5

3

Clinker
Bagged cement
Bulk cement

From Asia
and M.E. 11,7

1,0

8,5

4,1

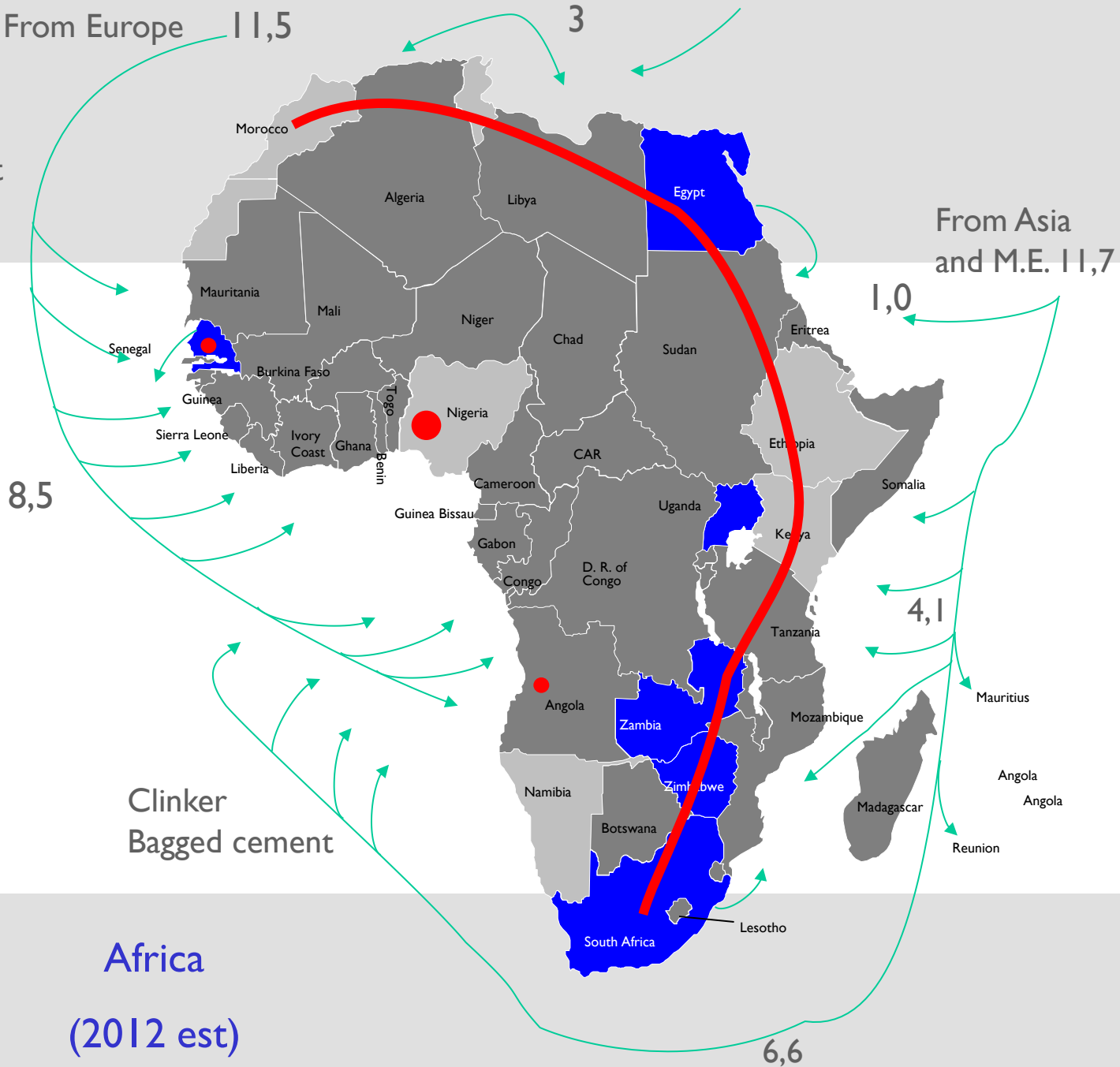
6,6

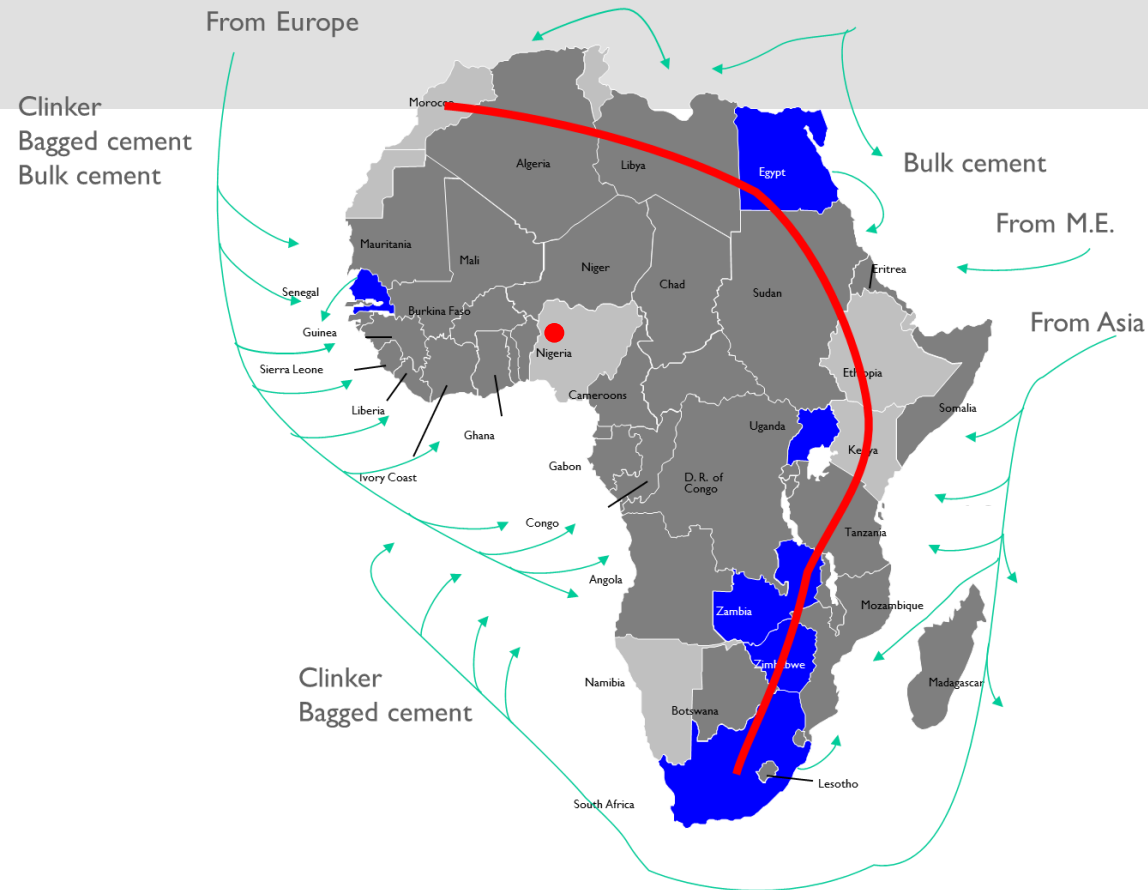
Clinker
Bagged cement

Africa

(2012 est)

Prod>cons
Prod<cons
Prod=cons





- 12 Cement plants capable for seaborne trade (8 in North Africa)
- 30 Bulk cement terminals (14 in Atlantic Islands)
- 33 Grinding plants receiving clinker by sea

75 Total of facilities

Africa



- 12 Export bases
- 14 Cement terminals
- 3 Grinding plants receiving clinker by sea

29 Total of facilities

Middle East

Maritime logistics and technology

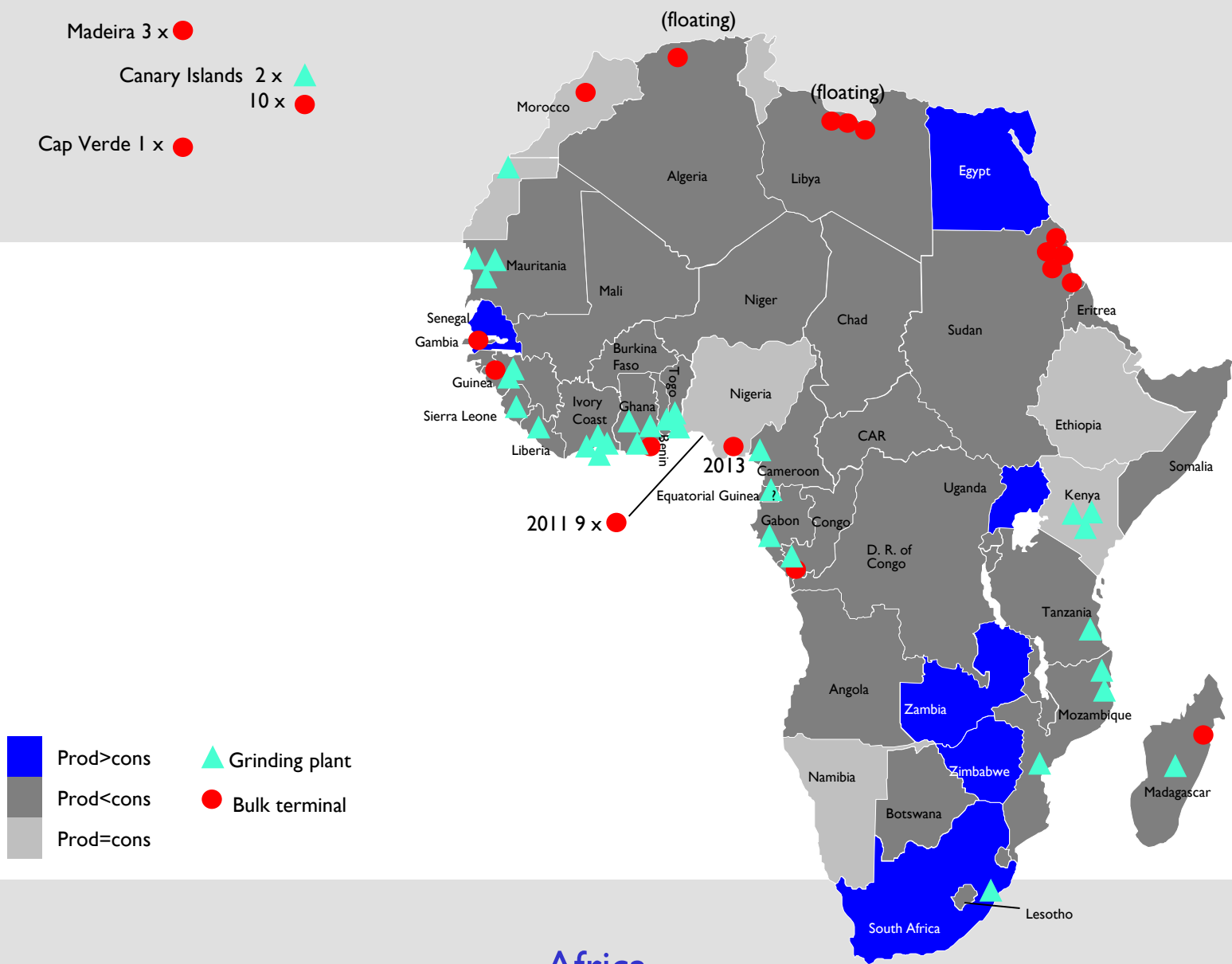
- 31,2 mt of cement and clinker moving around Africa and Middle East consisting of
 - 11,5 mt from Europe
 - 8,7 mt from Asia
 - 6,0 mt within Middle East
 - 2,0 mt within Africa
 - 3,0 mt from ME to Africa
- 31,2 mt of cement and clinker
 - 15,1 mt clinker (regular bulk carriers)
 - 9,9 mt bagged cement (regular bulk carriers)
 - 6,2 mt bulk cement (35% regular bulk carriers, 65% self discharging ships)

Shipping

Madeira 3 x ●

Canary Islands 2 x ▲
10 x ●

Cap Verde 1 x ●



Of the 33 grinding plants importing clinker,
only 5 have a dedicated dock



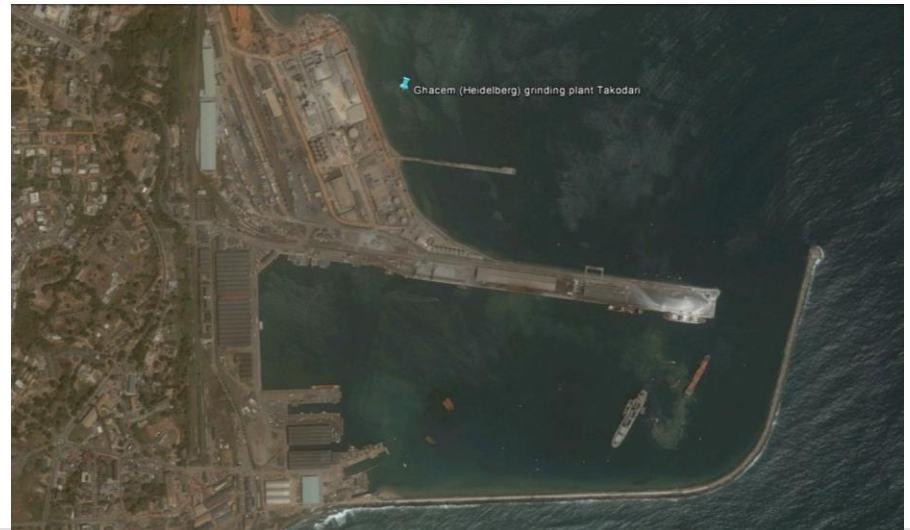
Lafarge Douala, Cameroon

27 Grinding plants import clinker via general ports and truck to the plant



Cimgabon, Owendo

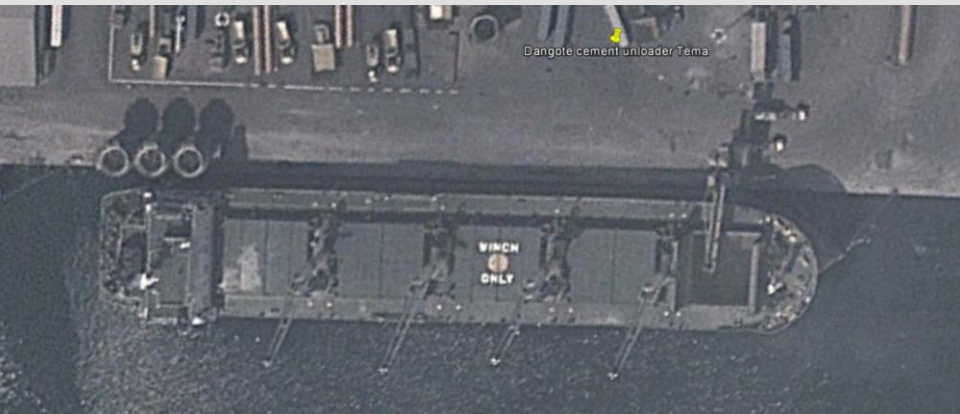
And a special solution



Heidelberg ,Takodari

Ship discharge to barge
and barge transport to the plant

Also some cement imports make use of the general port with truck transport to the terminal



Dangote, Tema

But in less congested ports the terminal can be located close to the unloading dock



Port Sudan

The situation in Nigeria, Lagos



2011 Three terminals – 2013 All closed

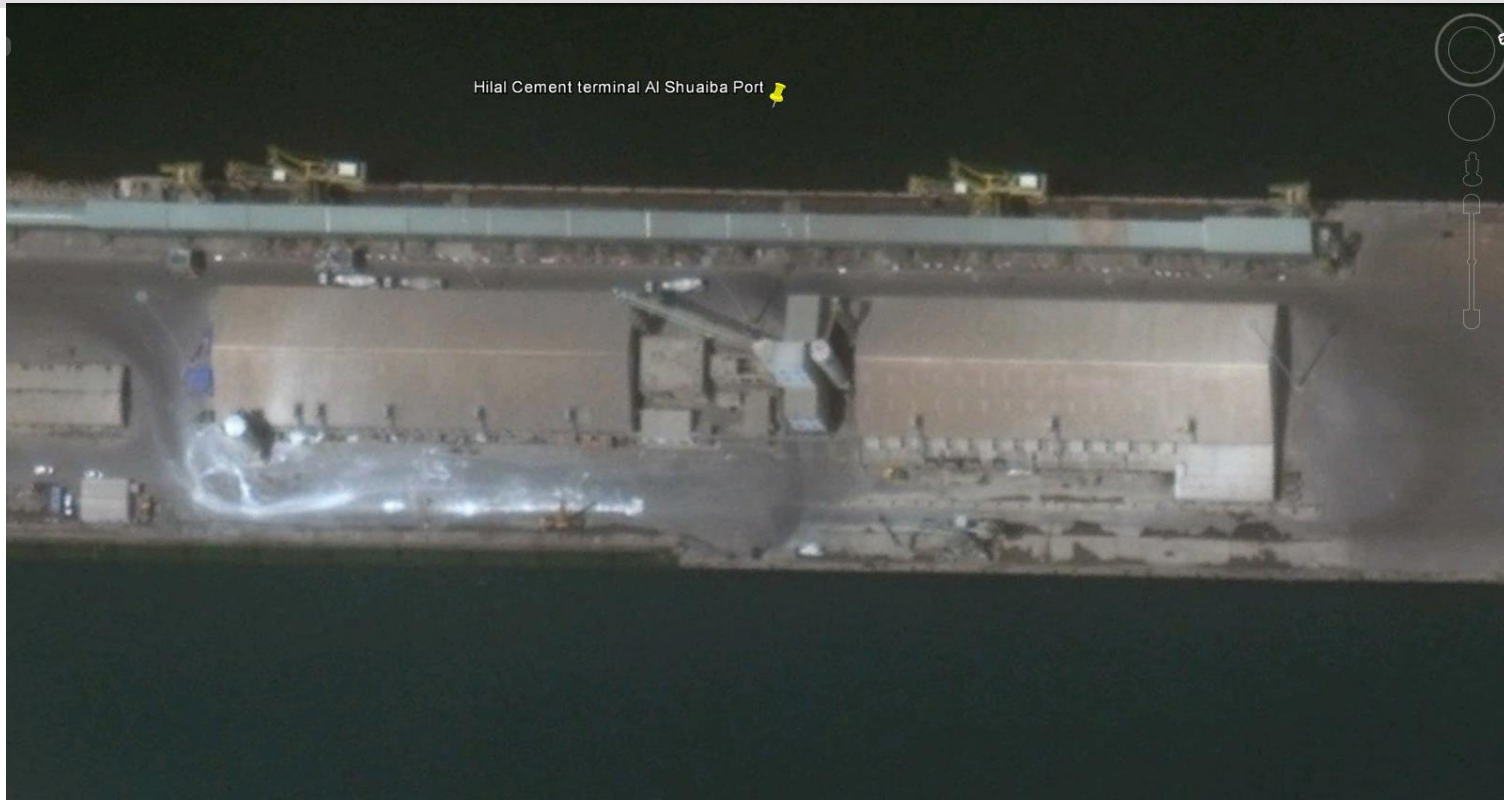
The situation in Nigeria, Port Harcourt area





Clinker and cement import facilities in the Middle East

Import terminals in the Middle East



Al Hilal shore terminal - Kuwait

Import terminals in the Middle East



Al Hilal floating terminal - Kuwait

Export facilities in the Middle East



Saudi Cement export terminal - Dammam

Export facilities in the Middle East



Kangan export facility - Iran

Problems in shipping to developing nations

- A) Usually poor port infrastructure and logistics (waiting time, long discharge time, receiving facilities located outside the port)

- B) Risky investment climate (volatile economical political situations)

Problems in shipping to developing nations

- A) Usually poor port infrastructure and logistics (waiting time, long discharge time, receiving facilities located outside the port)

Solution: Create ship unloading possibilities that do not require a port

- B) Risky investment climate (volatile economical political situations)

Solution 1: Make facilities removable

Solution 2: Reduce the capital cost of the facilities as much as possible

New developments

Small scale containerised grinding plant (Plug & Grind, Cemengal)

- Midstream transfer bulk carrier \Rightarrow barges
- River transport to one or several small grinding plants
(≤ 100.000 tons per year)
- Plants located in key markets
- Low capital cost
- Plant can be moved when economical/political situation changes



New developments

- Floating terminal with spud poles and floating pipeline
- Does not need a port facility, just a sheltered location
- Storage, bagging and truck loading facilities all build-up from containers



Floating terminal Lavioletta
23.000 tons



New developments

Low cost floating cement discharge system and shore terminal

- Geared bulk carriers discharging midstream
- Hoppers with dust collection and pneumatic convey system on pontoon or barge
- Floating pipeline to shore
- Flat storage (existing or new modular warehouse)
- Containerised reclaim and bagging systems



New developments

Low cost terminals and ship unloaders

- Back to basics:
Simple rugged machines manufactured in low cost countries
- Standardised component but flexible use
- Everything can be transported in containers or trailers and is removable



New developments

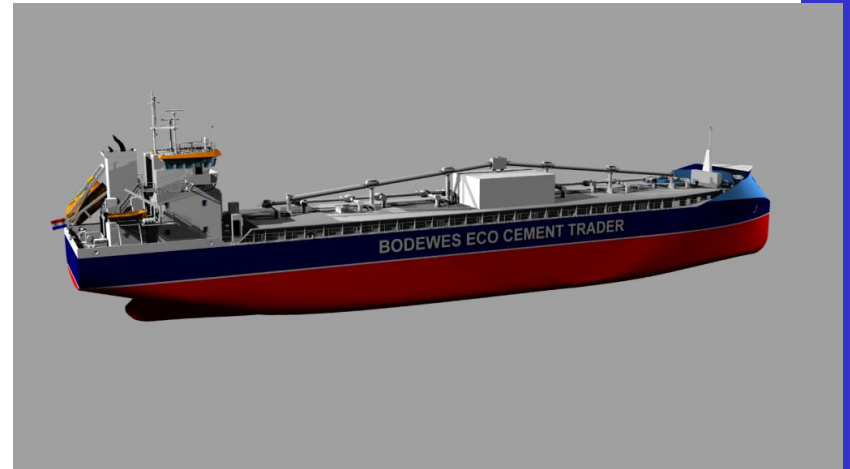
New class of high efficiency cement carriers based on Royal Bodewes Eco Trader 8700

Maximum fuel efficiency

- Improved hull design
- New cross bow
- Fuel consumption 11 tons per day at 13,5 kn.

Maximum cargo capacity

- Reduce steel weight by integrating cement handling system in ship construction
- Maximize hold volume (sg fly ash = 1)



THANK YOU

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