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

Ad Ligthart
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

<table>
<thead>
<tr>
<th>Market knowledge</th>
<th>Consulting</th>
<th>Project / interim management</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The global cement industry on Google Earth</td>
<td>Logistical, economical and technical services</td>
<td>Realising and managing projects</td>
</tr>
<tr>
<td>• Large database on waterside cement plants, waterside grinding plants and terminals</td>
<td>• Feasibility studies of complete logistical chains for trade and distribution</td>
<td>Examples</td>
</tr>
<tr>
<td>• 30 Years experience</td>
<td>• Shipping solutions</td>
<td>- Redevelopment of large “brown field” bulk terminal</td>
</tr>
<tr>
<td></td>
<td>• Development of new facilities</td>
<td>- Temporary cement and fly ash import project for construction of large concrete dam</td>
</tr>
<tr>
<td></td>
<td>• Terminal and equipment design</td>
<td></td>
</tr>
</tbody>
</table>

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

- Regional Med
- Great Lakes
- Regional Atlantic
- Regional Nordic
- Regional ME
- Regional Indian Ocean
- Regional NE Asia
- Regional Caribbean
- Regional SE Asia

Prod>cons
Prod<cons
Prod=cons

Regional seaborne exports: 45.1 mt
Global seaborne exports: 51.3 mt
Waterborne domestic distribution: 106 mt (excl. China)
Total: 202.4 mt
Clinker Bagged cement Bulk cement

From Europe 11.5

From Asia and M.E. 11.7

8.5

1.0

4.1

Morocco
Mauritania
Algeria
South Africa
Egypt
Sudan
Ethiopia
Somalia
Eritrea
Libya
Mali
Senegal
Sierra Leone
Liberia
Ivory Coast
Ghana
Burkina Faso
Niger
Guinea
Nigeria
Lesotho
Mozambique
Madagascar
Botswana
Namibia
Angola
Zambia
Zimbabwe
Tanzania
D. R. of Congo
Congo
Gabon
Chad
Kenya
Uganda

Africa
(2012 est)

From Asia and M.E.

1.0

8.5

11.5

11.7

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

29 Total of facilities

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)
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

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.

But in less congested ports the terminal can be located close to the unloading dock.
The situation in Nigeria, Lagos

2011 Three terminals – 2013 All closed

The situation in Nigeria, Port Harcourt area

2011 Six terminals – 2013 Only IBETO terminal left
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 ↔ 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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