

# SEABORNE TRADE AND DISTRIBUTION OF CEMENT AND CLINKER

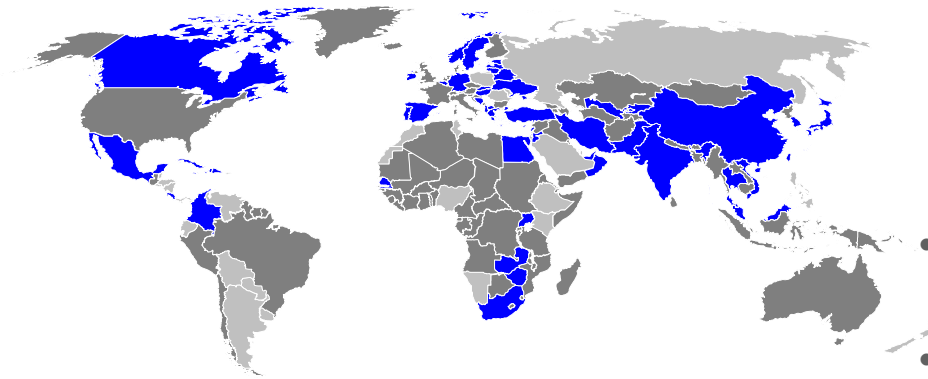
Ad Ligthart  
Cement Distribution Consultants



03-02-2014



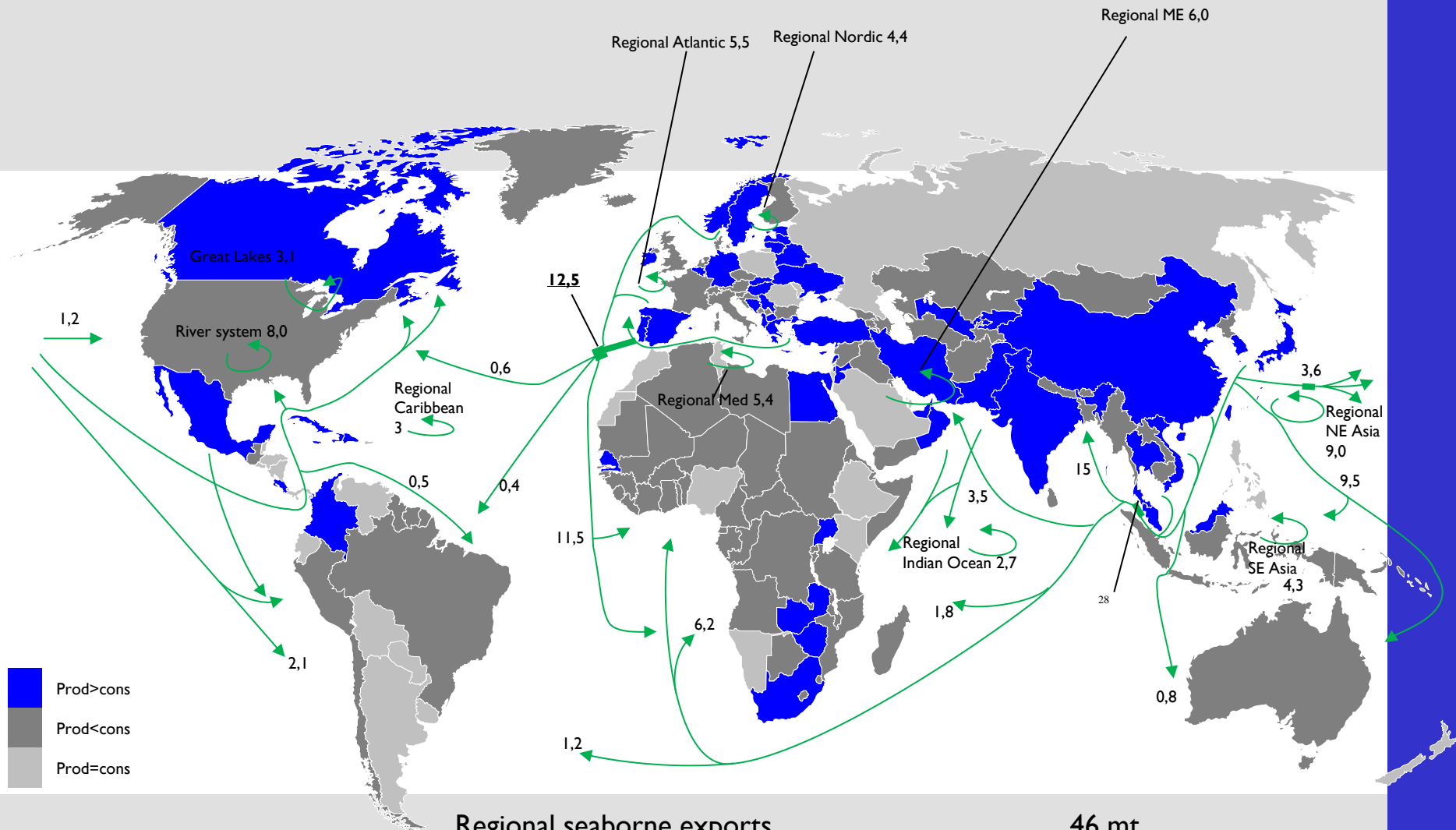
# CONTENTS OF PRESENTATION



- Global overview of cement and clinker shipping
  - Trade flows
  - Shipments by cargo type
  - Shipment by ship size and type
- The economics behind cement trade and distribution
- Shipping
- Who controls seaborne cement and clinker trade and distribution
  - The requirement of dedicated facilities
  - The global cement industry on Google Earth
  - A closer look at the Gulf area
  - Key statistics
  - Facility ownership
  - Conclusions



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



# SHIPMENTS BY CARGO TYPE

## CLINKER AND CEMENT TRADE BY WATER

Clinker / cement type	Seaborne trade (Mt)		Inland water domestic trade (Mt)
	International	Domestic	
Clinker	37,9	8,4	4,1
Cement – Bulk	43,1	69,1	9,7
Cement – Bagged	17,0	11,5	3,2
<b>Total</b>	<b>98,0</b>	<b>89,0</b>	<b>17,0</b>

## GLOBAL OVERVIEW CEMENT AND CLINKER SHIPPING

# CLINKER AND CEMENT TRADE BY VESSEL TYPE

## CLINKER AND CEMENT TRADE BY VESSEL TYPE

Clinker / cement type	Bulk Carriers (Mt)		Self-disch. cement carriers (Mt)	Inland ships & water barges (Mt)*
	Large	Coastal		
Clinker	36,1	10,2	0	4,1
Cement – Bulk	6,1	9,8	96,3	9,7
Cement – Bagged	19,6	8,9	0	3,2
<b>Total</b>	<b>61,8</b>	<b>28,9</b>	<b>96,3</b>	<b>17,0</b>
* excluding china				

# GLOBAL OVERVIEW CEMENT AND CLINKER SHIPPING

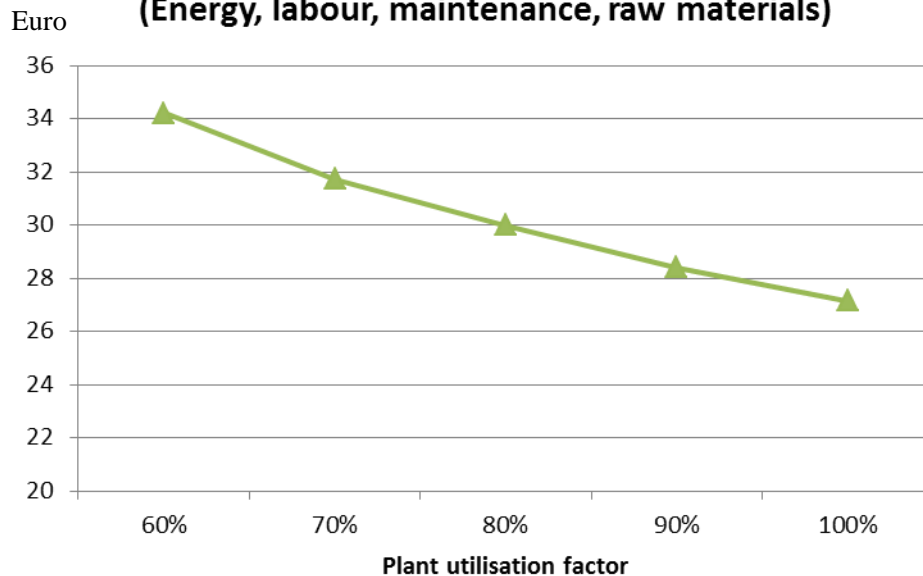
# THE ECONOMICS BEHIND CEMENT TRADE AND DISTRIBUTION

# Maximizing plant utilisation

## Assumptions:

- Plant capacity 1,5 mtpa
- Ex works price domestic € 85
- Ex works price exports € 40

**Production cost per ton  
(Energy, labour, maintenance, raw materials)**



**Example only!**

## Example 1

Domestic sales	1.050.000 tons (70%)
Export sales	0

Income domestic sales	89.250.000
Income export sales	<u>0</u>
Total income	89.250.000
Production costs (@70%)	<u>33.316.500</u>
Contribution to financial costs and profit	55.933.500

## Example 2

Domestic sales	1.050.000 tons (70%)
Export sales	<u>300.000 tons (20%)</u>
Total sales	1.350.000 tons ( 90%)

Income domestic sales	89.250.000
Income export sales	<u>12.000.000</u>
Total income	101.250.000
Production costs (@90%)	<u>38.353.500</u>
Contribution to financial costs and profit	62.896.500

**The economics behind cement trade and distribution**

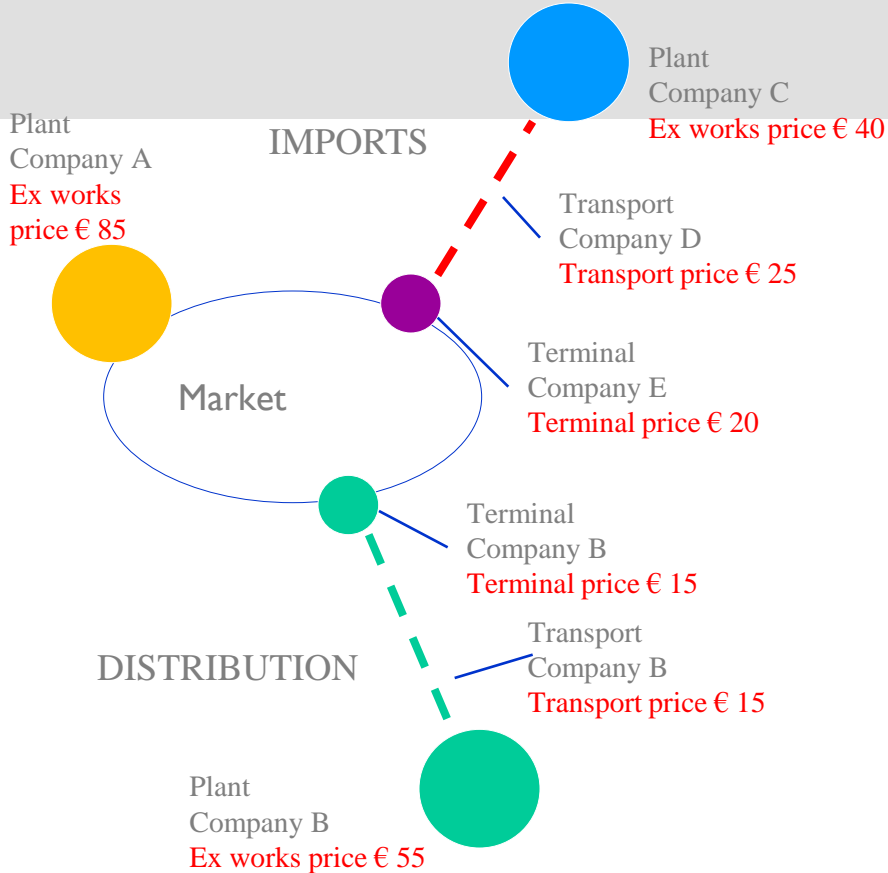
# Maximizing plant utilisation

- Cement sold in other markets than the local one has to have a lower Ex Works price to allow for the higher cost of transportation.
- The margin on the additional cement sold into other markets provides an additional contribution which largely goes directly to the bottom line.
- The key benefit of the additional cement sold into other markets is the higher utilisation of the plant resulting in a substantial lower production cost per ton over the entire production of the plant!

The economics behind cement trade and distribution



# Maximizing plant utilisation



A single plant supplying a single local market at first glance seems to be in the most profitable situation.

However, this is only the case when this plant can reach (near) full utilisation rates. When company A can only sell 70% of its capacity in its home market and has no means to reach other markets it is far worse off than company B or C that might be able to sell 70% in their home markets plus 20% to other markets, even at a reduced ex works price.

## The economics behind cement trade and distribution

# SHIPPING

# SELF DISCHARGING CEMENT CARRIERS

Total quantity bulk cement transported	96 million tons (2012)
Total number of vessels (>2.000 Dwt)	Approx. 300
Average size of vessel	Approx. 8.200 Dwt
Average age of vessel	Approx. 24 years

Of the 96 million tons transported about 70 million tons is domestic seaborne distribution and about 26 million tons is international trade.

The utilisation factor of the global fleet of self discharging cement carriers is very high (>95%). Time Charter rates are very high. This is caused by the growth of seaborne domestic distribution in Japan but especially in Indonesia.

Currently are 8 newbuildings under construction but this will do little to ease the pressure.

# BULK CARRIERS

Total quantity (clinker, bulk cement, bagged cement) transported by Handysize, Handymax vessels 62 million tons (2012)

Total quantity (Clinker, bulk cement, bagged cement) transported by coastal vessels (<10.000 Dwt) 29 million tons (2012)

Of these quantities approx. 72 mt is international trading and 19 million tons is domestic. For these bulk carrier shipments, vessels from the regular shipping industry were used.

# WHO CONTROLS CEMENT AND CLINKER SHIPPING?

# THE REQUIREMENT OF DEDICATED FACILITIES

In the international trade about 83% of cement and clinker shipping consists of clinker and bulk cement. For domestic distribution (seaborne and inland waterways) this is an estimated 86%. Clinker and bulk cement require dedicated facilities (grinding plants and bulk cement terminals). The owners of these receiving facilities determine who will supply them. They control cement and clinker shipping.

## WHO CONTROLS CEMENT AND CLINKER SHIPPING?

## So who owns

- The cement plants that export by sea?
- The grinding facilities receiving clinker by sea?
- The cement terminals along coasts and rivers?

To answer these questions  
Cement Distribution Consultants has put  
the global cement industry on Google Earth

# WHO CONTROLS CEMENT AND CLINKER SHIPPING?

# The global cement industry on Google Earth



WHO CONTROLS CEMENT  
AND CLINKER SHIPPING?



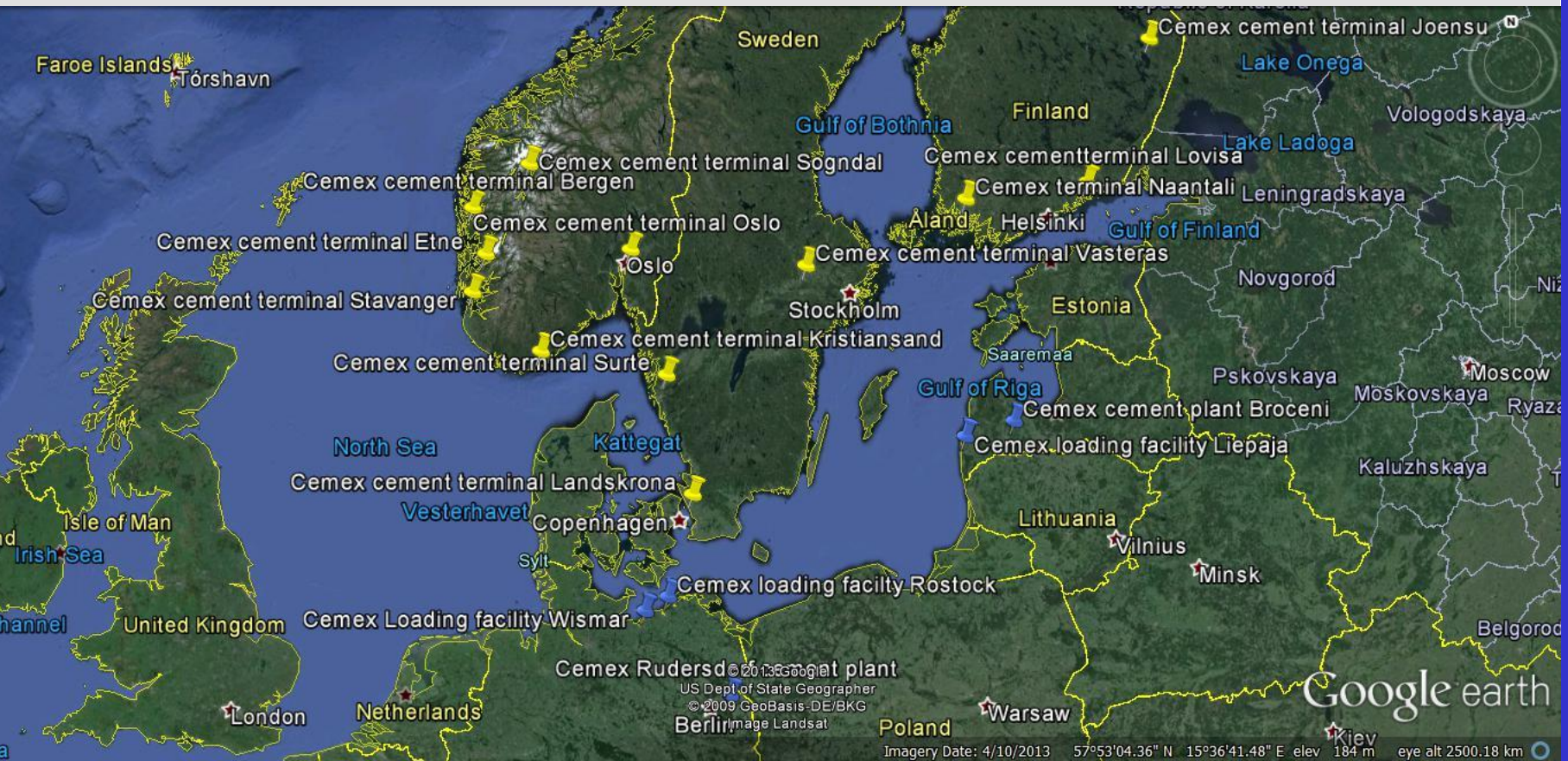
# The cement industry on Google Earth Europe



WHO CONTROLS CEMENT  
AND CLINKER SHIPPING?



# Cemex Nordic Network

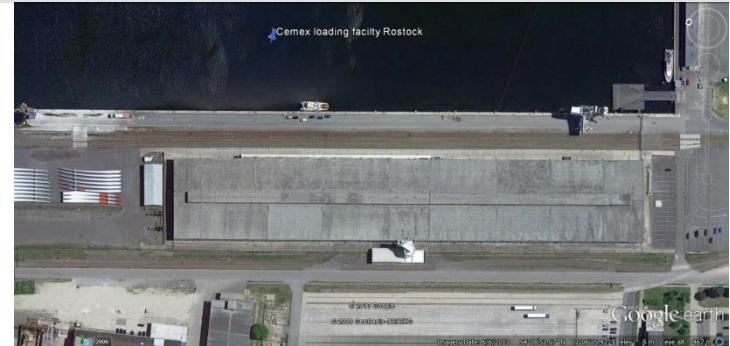


## WHO CONTROLS CEMENT AND CLINKER SHIPPING?

# Cemex Nordic Network



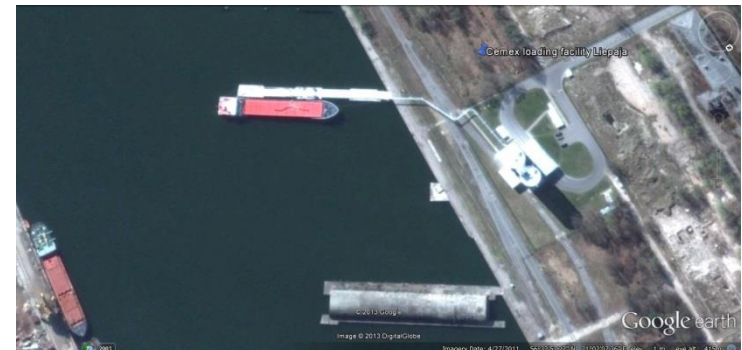
Cemex, Rudersdorf plant



Cemex, Rostock loading facility



Cemex, Broceni plant



Cemex, Liepaja

## WHO CONTROLS CEMENT AND CLINKER SHIPPING?



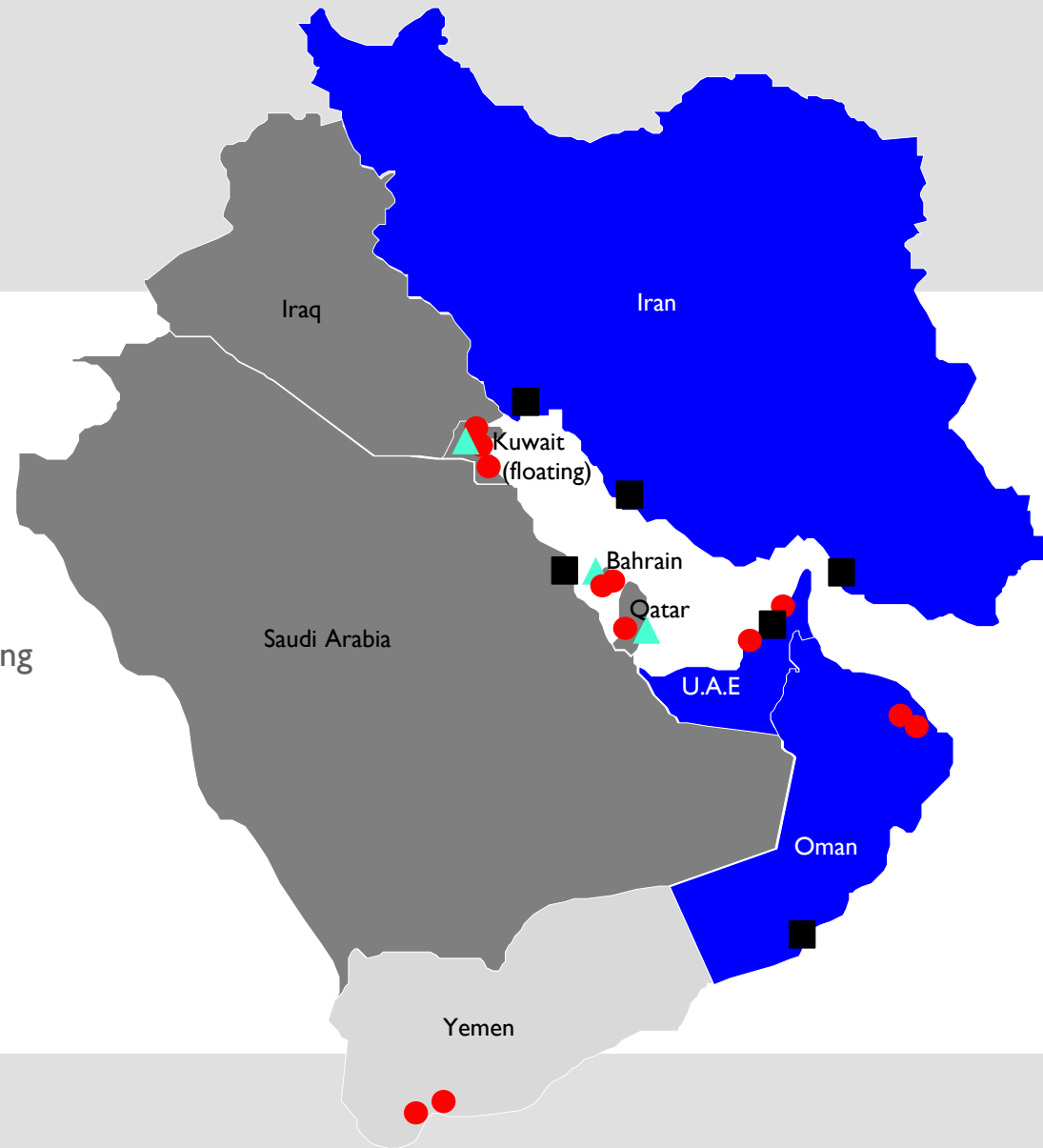
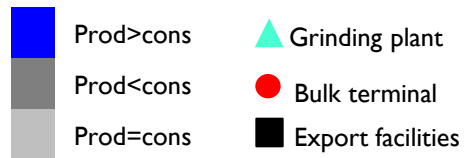
# Cemex Surte Terminal



## WHO CONTROLS CEMENT AND CLINKER SHIPPING?

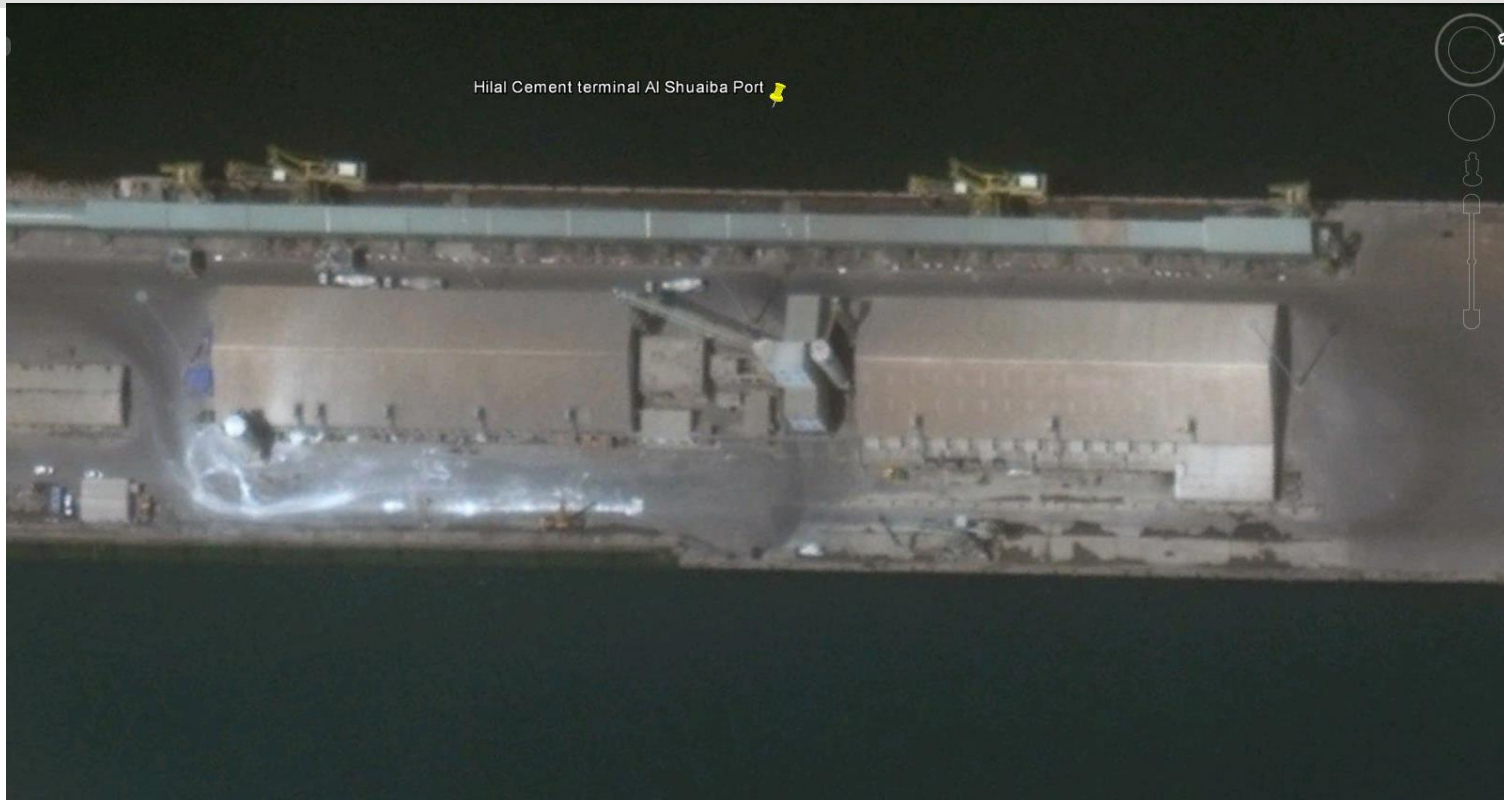
- 6 Export bases
- 10 Cement terminals
- 3 Grinding plants receiving clinker by sea

## 19 Total of facilities



Clinker and cement export and import facilities in the Gulf Area

# Import terminals in the Gulf area



Al Hilal shore terminal - Kuwait

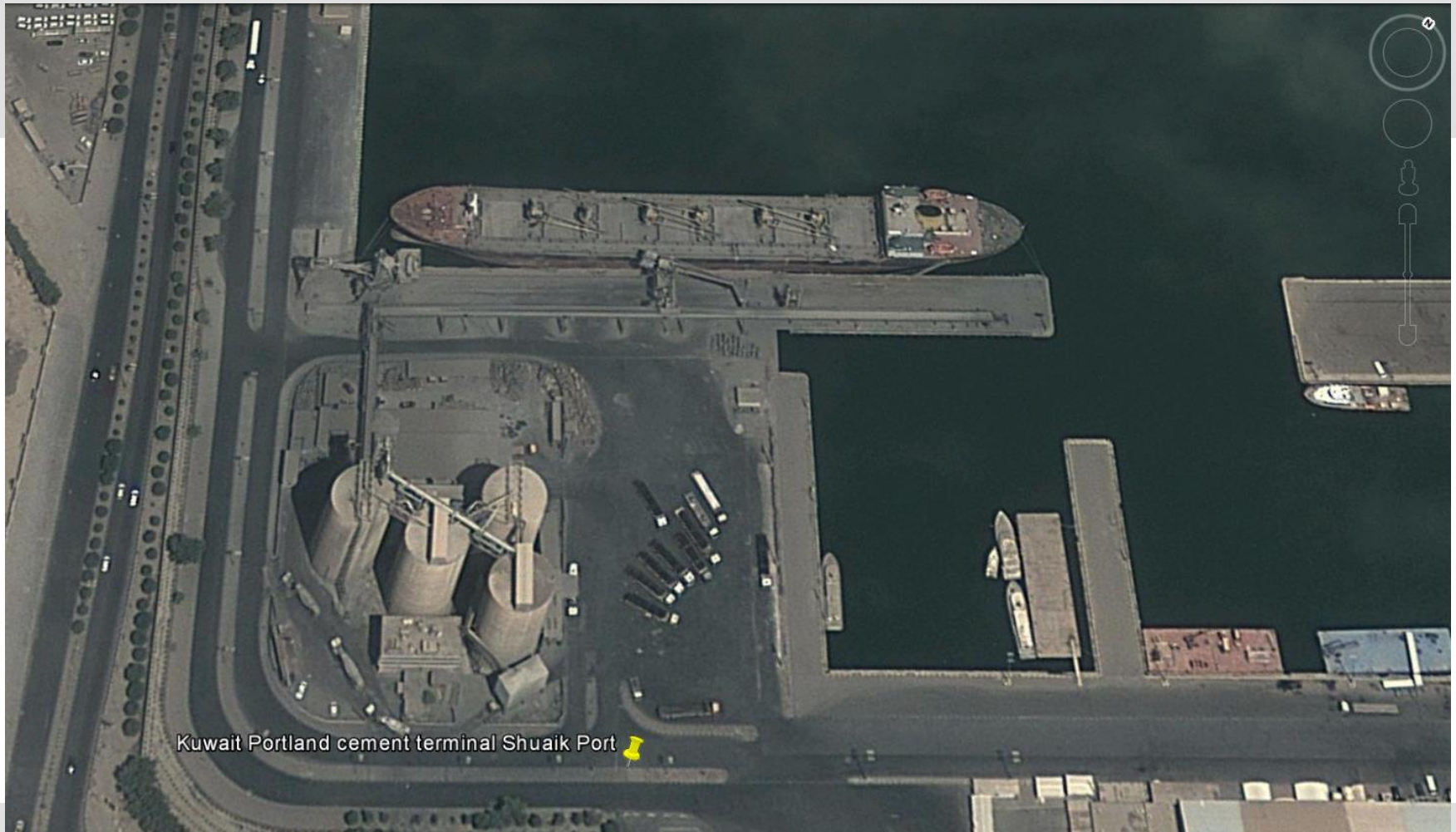
# Import terminals in the Gulf area



Al Hilal floating terminal - Kuwait



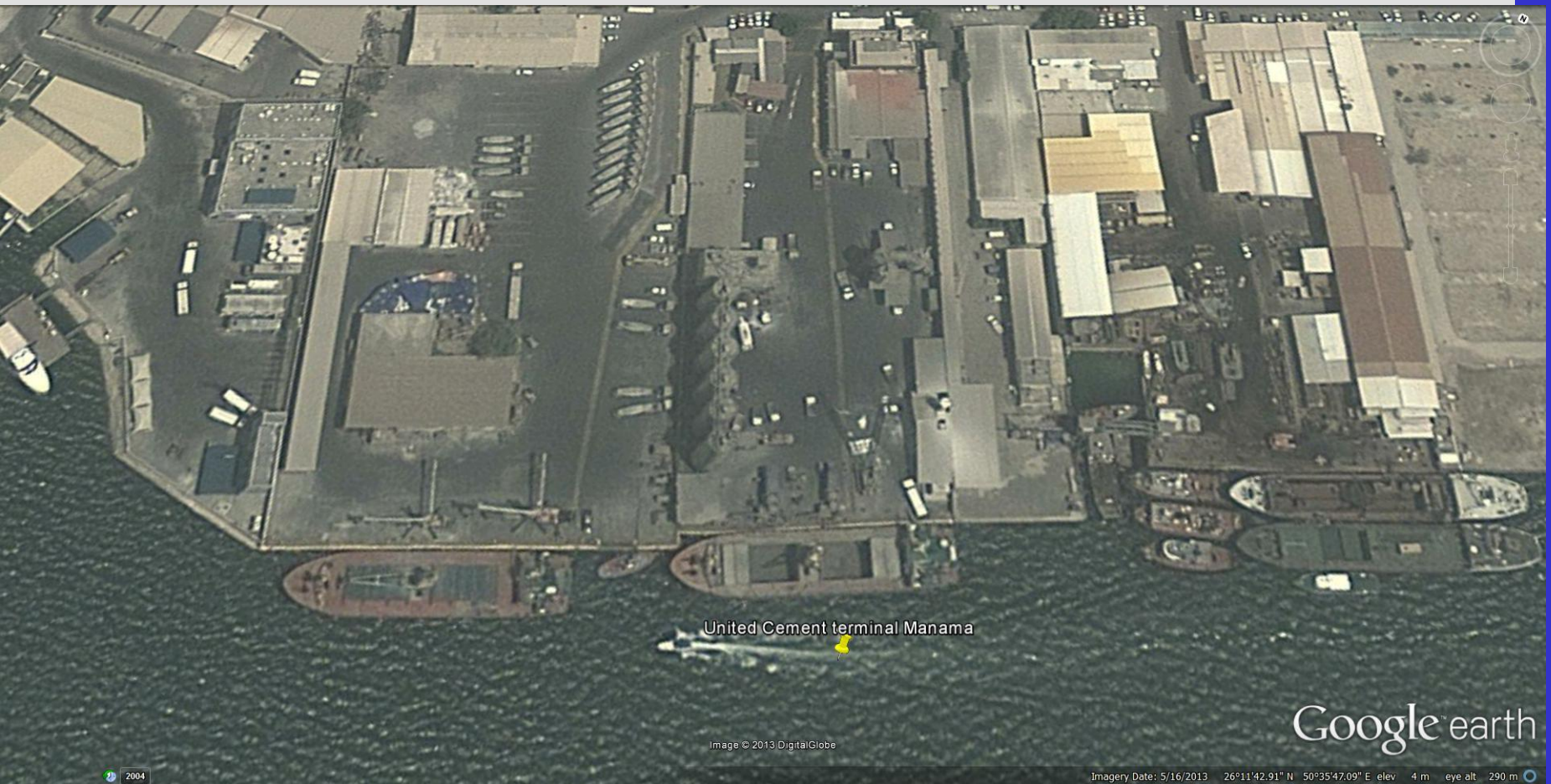
# Import terminals in the Gulf area



Kuwait Portland Cement

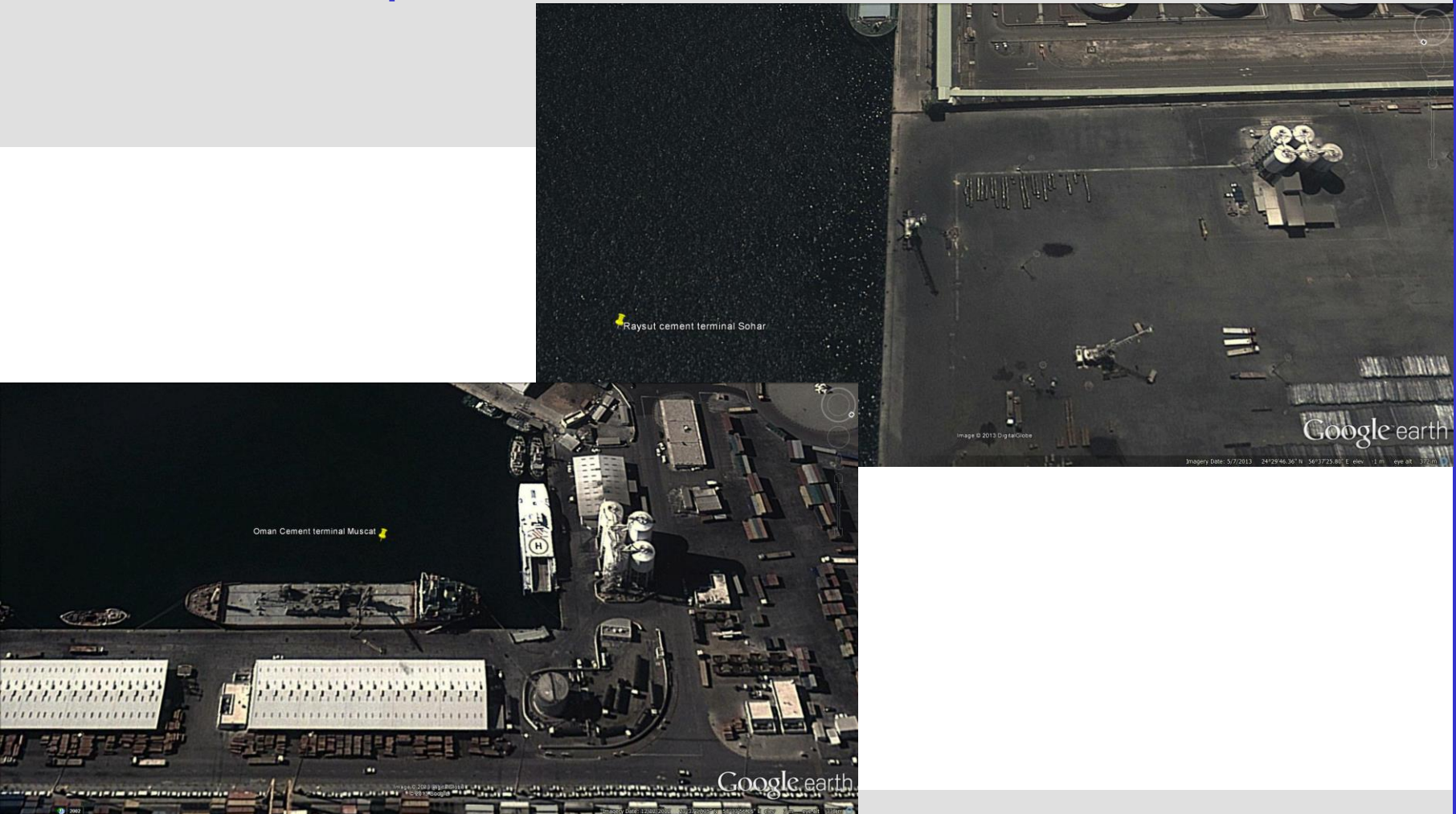


# Import terminals in the Gulf area



United Cement - import terminal, Bahrain

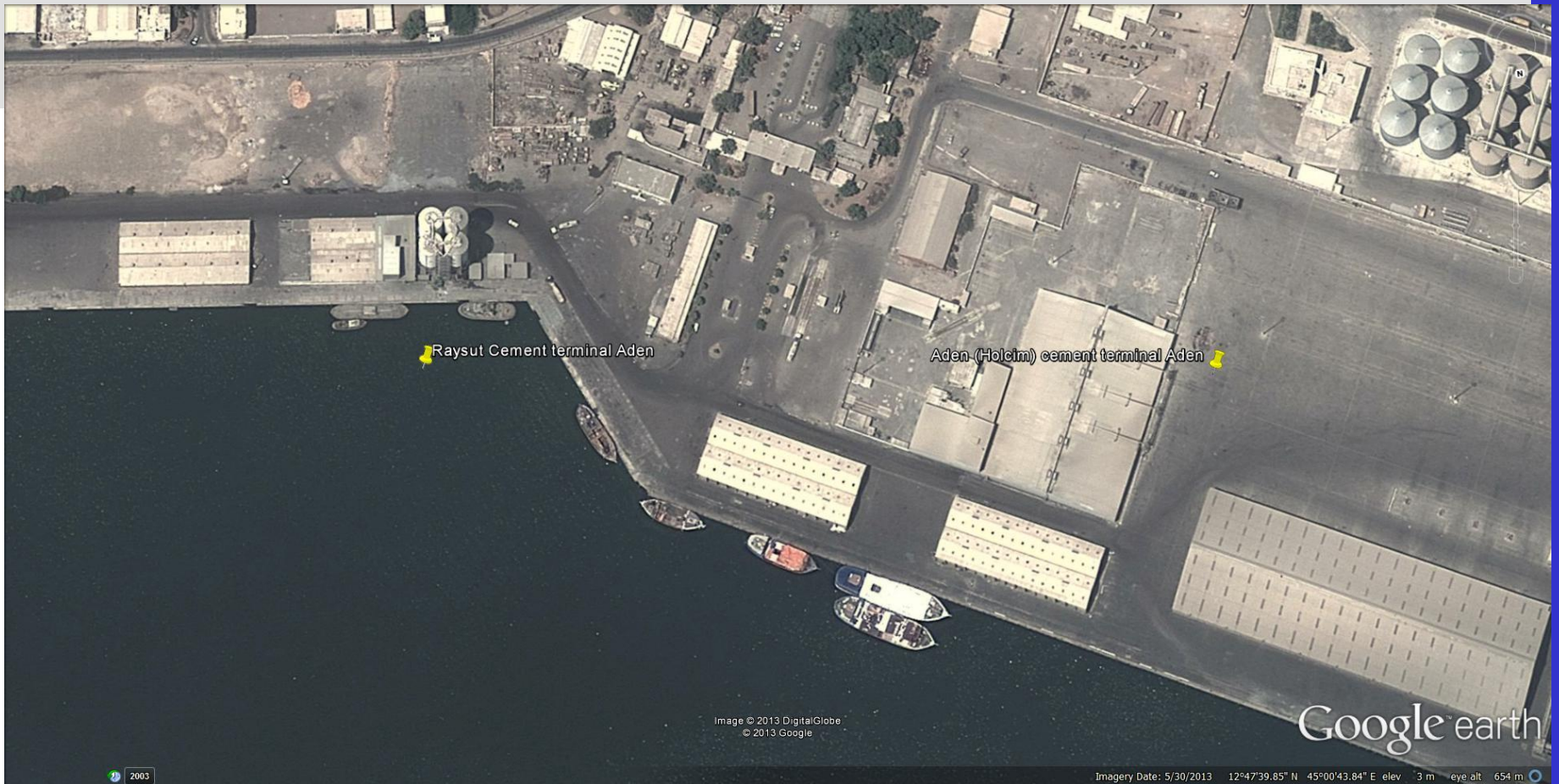
# Import terminals in the Gulf area



Raysut cement distribution terminals, Oman



# Import terminals in the Gulf area



## Yemen import terminals

# Export facilities in the Gulf area



Saudi Cement export terminal - Dammam



# Export facilities in the Gulf area



Kangan export facility - Iran

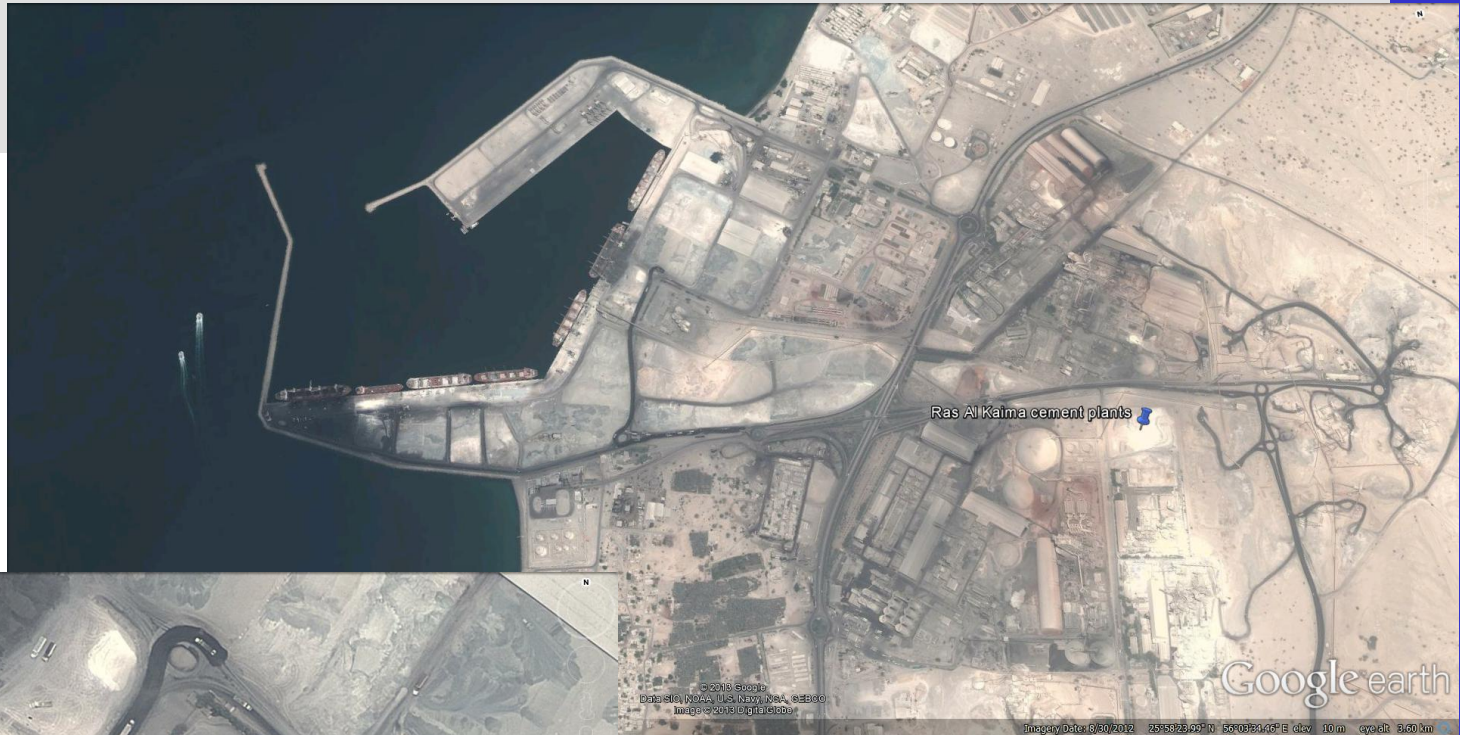
## Export facilities in the Gulf area

Payaneh Ehdasse export terminal Bandar Iman Khomeini

Payaneh Ehdasse export terminal Bandar Iman Khomeini, Iran



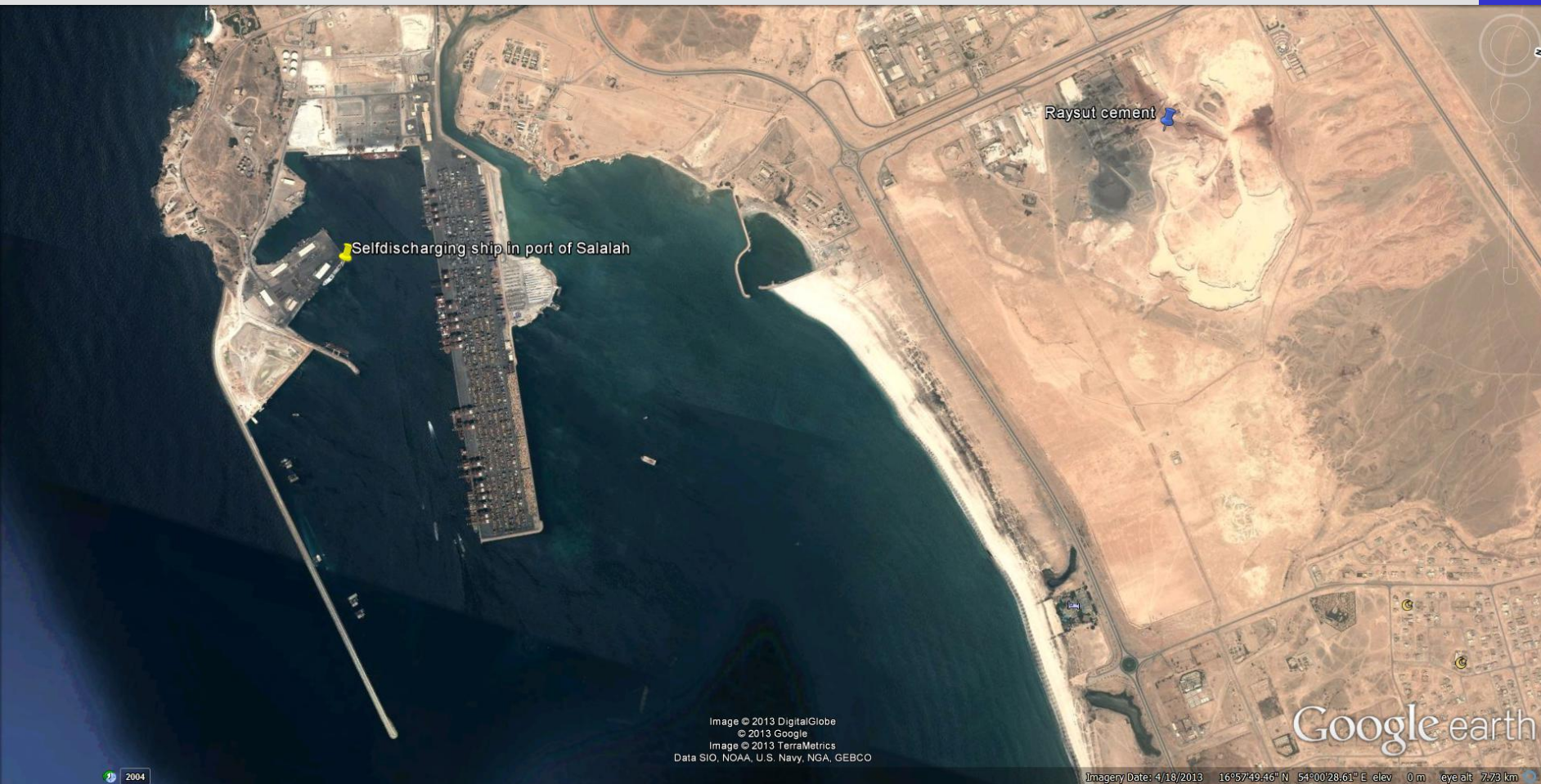
# Export facilities in the Gulf area



Export terminals – Ras Al Khaima, UAE



# Export facilities in the Gulf area



Raysut Cement – export plant, Salalah



# Facilities involved in sea/waterborne cement and clinker trade and distribution

217 Cement plants

857 Cement terminals

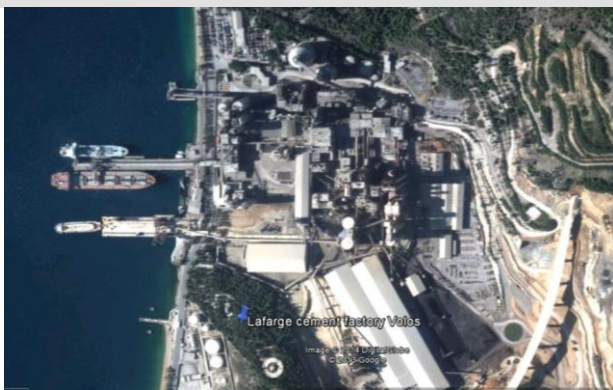
195 Grinding plants

**Total 1269 Facilities**

**WHO CONTROLS CEMENT  
AND CLINKER SHIPPING?**

# 217 Cement plants involved in sea / waterborne trade and distribution of cement and clinker of which...

91 plants have their own port or dock



8 Plants connect to a loading facility in the port by a conveying belt.



15 Plants rail cement to a loading facility in the plant



4 Cement plants rail cement to the port and load ships directly from rail cars



4 Cement plants rail cement to the port and load ships directly from rail cars

## WHO CONTROLS CEMENT AND CLINKER SHIPING?

# 217 Cement plants involved in sea / waterborne trade and distribution of cement and clinker of which...



22 Truck cement  
to a loading  
facility in the  
port



9 Cement plants  
barge cement and  
clinker to ports  
for direct transfer  
of barges to ships



51 Plants truck cement or clinker to  
the port for direct ship loading



## WHO CONTROLS CEMENT AND CLINKER SHIPPING?

17 Cement  
plants distribute  
domestically by  
barges

## 217 Cement plants involved in sea / waterborne trade and distribution of cement and clinker of which...

134 load up to Handysize and Handy max bulkers

61 load up to coastal (<10.000 Dwt vessels)

5 load Great Lakes vessels

17 load inland barges solely for domestic distribution



# 857 Cement terminals of which...



*Houston Cement*

688 served by self discharging  
vessel

169 with ship unloader

*Norcem, Oslo*



# 857 Cement terminals 140 Suitable for handysize / handymax vessels of which....

61 served by self  
discharging ships

50 have a  
mechanical  
unloader

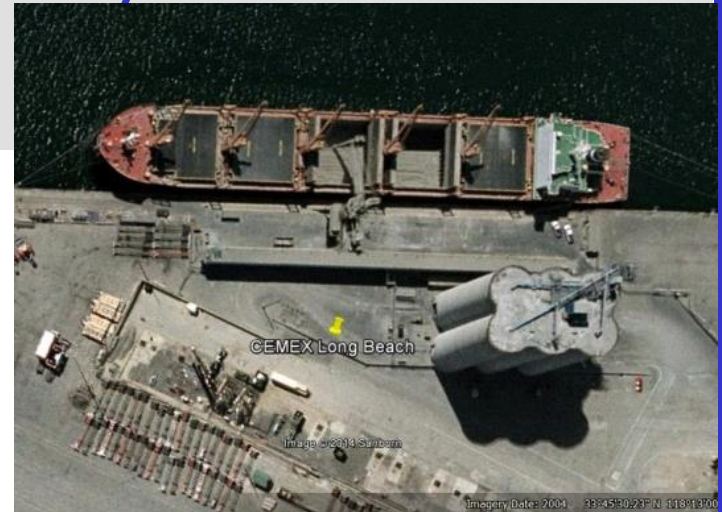


*Taiwan Cement, Taichung*  
*Silvi, Bristol*



24 have a pneumatic  
unloader

5 have grab and  
hopper system



*Cemex, Long Beach*

*Lafarge, Onne*



## WHO CONTROLS CEMENT AND CLINKER SHIPPING?



# 857 Cement terminals

## 717 suitable for coastal (< 10.000 dwt) and inland vessels

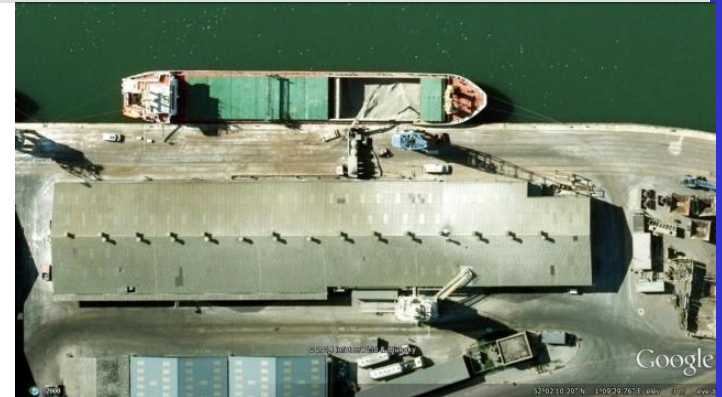
### of which....



*Holcim, Plymouth*

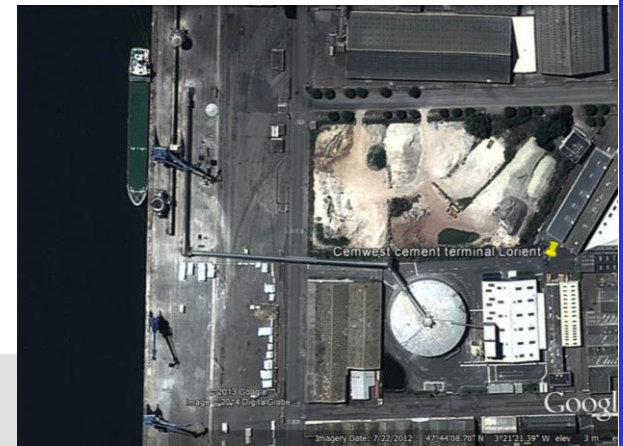
558 served by  
self discharging  
vessels

77 have a  
pneumatic  
unloader



24 have a  
mechanical  
unloader

I has a grab &  
hopper system



*Cemvest, Lorient*

## WHO CONTROLS CEMENT AND CLINKER SHIPING?

# 857 Cement terminals of which....

722 silo terminals

74 flat storage terminals

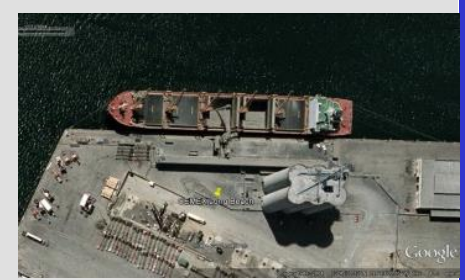
24 dome terminals

18 floating terminals

8 direct to end user (no storage)

11 unknown

## WHO CONTROLS CEMENT AND CLINKER SHIPPING?





# 195 Grinding plants of which....

163 receive up to Handysize / Handymax bulkers

19 receive coastal (<10.000 Dwt) vessels

8 receive Great Lakes carriers

5 receive inland barges

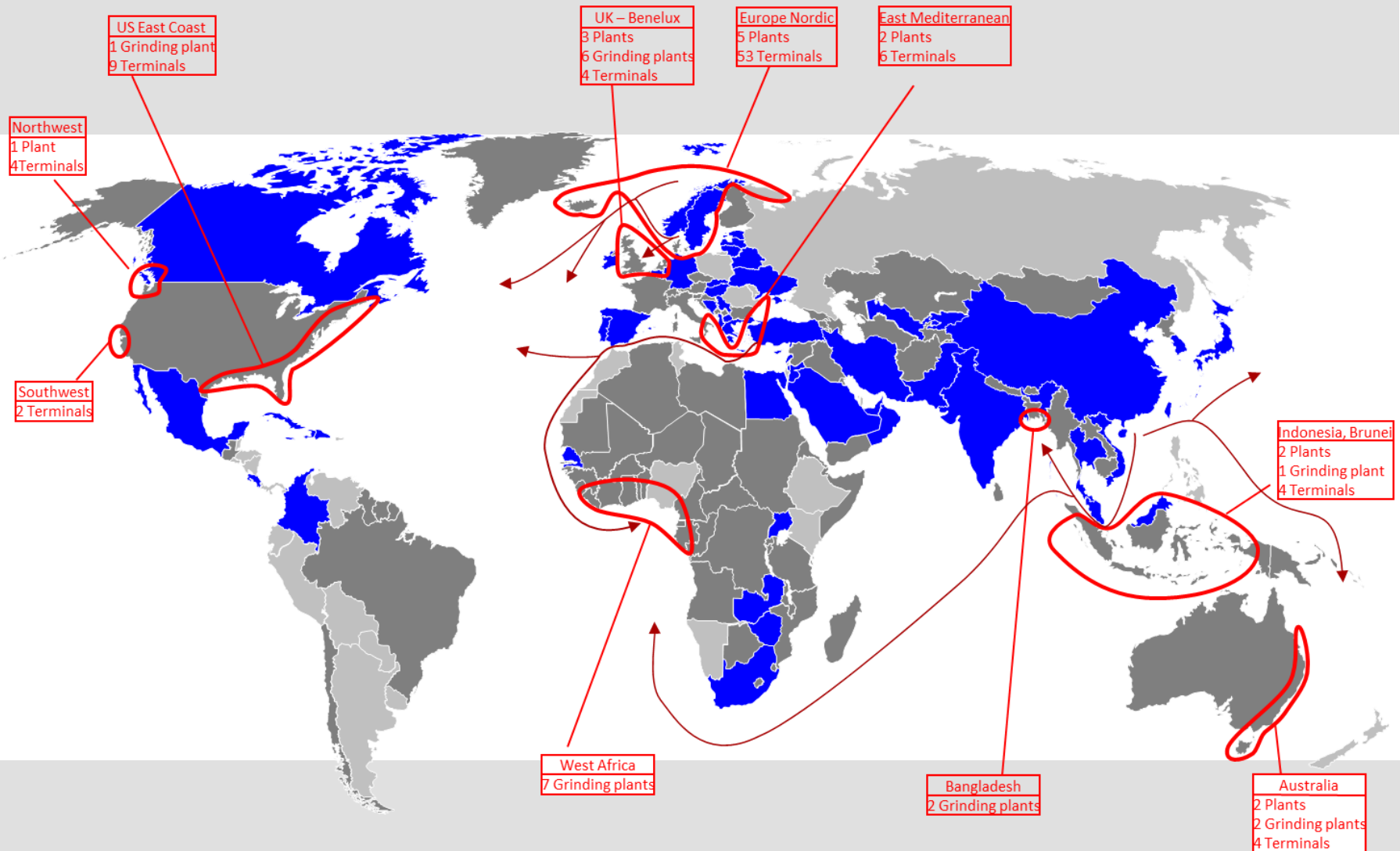
217 Cement plants, 857terminals, 195 Grinding plants

BUT WHO OWNS THEM?

## The top 5 multinationals

Overview of facilities of the top 5 multinationals that involved in waterborne trade and distribution.				
Company	Cement plants	Grinding plants	Terminals	Total
Lafarge	23	16	89	128
Heidelberg	11	19	88	118
Holcim	20	20	77	117
Cemex	19	3	71	93
Italcementi	10	7	21	38
	83 (38%)	65 (33%)	34 (40%)	494 (39%)

# Example: Heidelberg global maritime network



# THE ACTUAL TOP RANKINGS

## (owners with 20 facilities or more)

	Cement Plants	Terminals	Grinding Plants	Total Facilities
Lafarge	23	89	16	128
Heidelberg	11	88	19	118
Holcim	20	77	20	117
Cemex	19	71	3	93
Taiheiyo	12	78	2	92
UBE/Mitsubishi	5	58	0	63
Sumitomo/Osaka/Nippon Steel	4	47	0	51
Italcementi	10	21	7	38
Tokuyama	1	27	1	29
Buzzi Unicem	5	16	2	23
CRH	4	17	2	23
Cement Indonesia	3	19	0	22
Votorantim	4	10	6	20
13 Owners controlling	121 56%	618 72%	78 40%	817 64%

WHO CONTROLS CEMENT  
AND CLINKER SHIPING?



# AND THE REST

1 owner with 19 facilities  
2 owners with 16 facilities  
1 owner with 13 facilities  
2 owners with 11 facilities  
3 owners with 9 facilities  
2 owners with 8 facilities  
3 owners with 7 facilities  
3 owners with 6 facilities  
6 owners with 5 facilities  
5 owners with 4 facilities  
9 owners with 3 facilities  
22 owners with 2 facilities  
141 owners with 1 facility

## WHO CONTROLS CEMENT AND CLINKER SHIPPING?

# IN SHORT

Total 213 owners with 1269 facilities

13 Owners having 817 facilities (64%)

59 Owners having 298 facilities (23%)

141 Owners having 1 facility each (11%)  
(22 cement plant, 53 terminals, 64 grinding plants)

Of 22 facilities the ownership is unknown

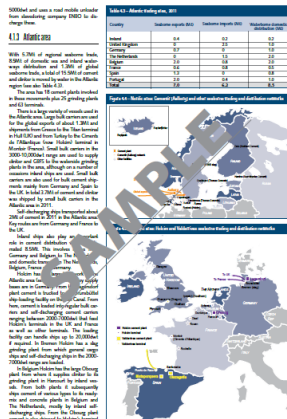
# Coming Soon!!

## The ICR Handbook on Global Cement Trade and Distribution



[ 51 ]

REGIONAL TRADE AND DISTRIBUTION NETWORKS



[ 52 ]


- ☐ Overview of Global cement and clinker trade
- ☐ Country and regional cement trade analysis and statistics
- ☐ Fully illustrated with 80 detailed colour maps indicating material flows and trading networks and facilities
- ☐ Cement shipping and distribution economics
- ☐ Review of cement terminal design and operation
- ☐ Facilities directory

Authors:

**CEMENT**  
DISTRIBUTION  
CONSULTANTS



# Cement Distribution Consultants an introduction

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

STEAG

- 30 Years in power plant by-products
- Partner for energy and construction industry
- Market leader in Europe

Shipping company  
(TBA)

Hawar Group

- Family owned holding company
- Business focus on GCC countries
- Activities in logistics, construction and engineering

Knowledge Transfer & Investments

**HAWAR POWER MINERALS**

حوار باور مينرالز

End to end supplier of cementitious materials

Supply sources

Creating multiple reliable sources by guaranteeing export volumes and assisting with quality management and certification

(co) investing in  
export facilities

Logistics

Minimizing overall transport costs by creating volume and realizing optimal "end to end" logistics

Investing in  
specialist ships

Markets

Creating partnerships with cement and concrete companies providing a cost effective supply as well as technical, economical and market knowledge

(co) investing in  
export facilities

# THANK YOU

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