

Dredging in Figures – 2009

This review of the global dredging market focuses on the situation in 2009 and was published in October 2010. IADC is always very thorough and precise in estimating the dredging turnover. By verification of data this document is continuously improved. In 2009 we conclude the turnover in the industry grew by an estimated 7%, however due to suspected incomplete data in previous years, this growth may be an overstatement.

Maritime Solutions for a Changing World

Dredging changes the world. Yet, at the same time, the industry itself is in constant transformation. Innovations and a solution-oriented approach have resulted in a small growth of the industry and a record number of dredging projects executed in 2009.

This review analyses the development of the different industry drivers, the capacity figures for the main dredging equipment as well as the market turnovers specified in different regions and in types of projects.

Over the last year, the world has changed dramatically. The global economic outlook has deteriorated and an immediate broad scale recovery is not foreseen. Dredging in Figures does not provide a specific outlook. The turnover in the near future is uncertain. As a remedy to the credit crunch, governments intended to invest heavily in infrastructure. When liquidity became a serious problem, governments faced huge budget deficits and this resulted in more prudent financial policies. Investment decisions were postponed or cancelled. To what extent this will influence the activity level in our industry is not clear. However, the long term drivers show a positive development.

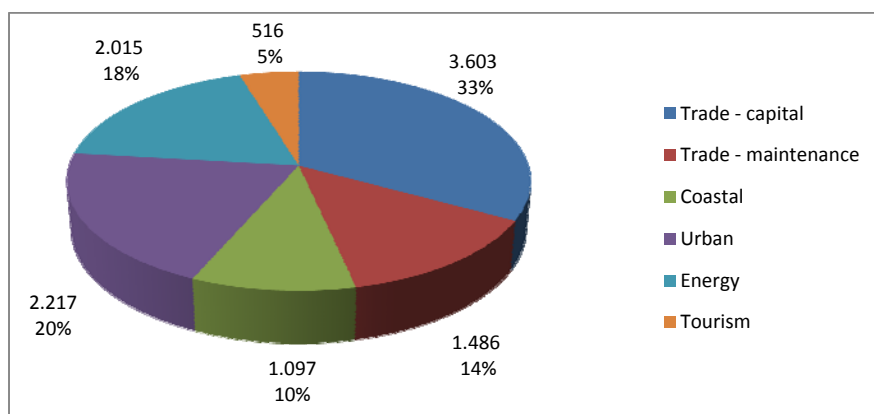
International institutions such as IMF, OECD, UNCTAD and many others, provide well-supported future outlooks on the drivers for the dredging industry. How to value these outlooks is a strategic choice for the players in the market.

What drives Dredging?

Dredging is vital to social and economic development, in particular to the construction and maintenance of much of the infrastructure upon which our economic prosperity and social and environmental well-being depends. Dredging can be characterised as a capital-intensive industry requiring in depth contracting knowledge. Its impact for an economy is therefore far larger than its effect on direct employment or industry turnover. The world population depends heavily on dredging solutions for global trade, coastal defence, urban development, energy supplies and leisure/tourism.

The estimated total turnover of global dredging contractors – private as well as state- or port-owned companies – is estimated at €10.933 mln for 2009¹. The graph below shows the composition of this turnover for 2009:

Turnover global dredging market 2009 per driver in mln €



¹ This figure relates to underwater excavation, transportation and placement of dredged material carried out in 2009. It does *not* include maritime construction such as breakwaters, offshore installations, harbour infrastructure, dams, dikes and other infrastructure in which dredging contractors are involved. However, within this figure, some € 739 mln. relates to rock works that are an integrated part of land reclamations and coastal defence.

Environment

Dredging is 'building within nature'. This means that understanding the integration with the environment and incorporating working methods to mitigate adverse effects are an integrated part of every dredging project. The work related to such environmental aspects cannot be isolated out the total amount of work. Cleaning up contaminated soil is frequently related to capital dredging projects. Within projects, adverse environmental impacts are mitigated or compensated. Sometimes, creating additional nature or habitats is not only a compensation measure, but enhances tourism and urban development. In the right hands and done properly, dredging creates a positive synergy between ecology and socio-economic development.

Developments of drivers

World Trade

Global trade has increased steadily between 2000 and 2008 regardless of business cycles in the global economy². Container ships are getting larger and faster, putting increased demand on the capacity and efficiency of ports. Dredging solutions support ports in meeting this challenge by maintaining and deepening channels as well as supplying dredged material for building berths, quay walls and hinterland infrastructure. From 2000 to 2008, seaborne trade increased with 36,5%, measured in tonnes. The turnover within the dredging industry, as related to world trade, has more than doubled during the period 2000 to 2009 from €2.000 mln. to €5.100 mln.

Demography and Climate

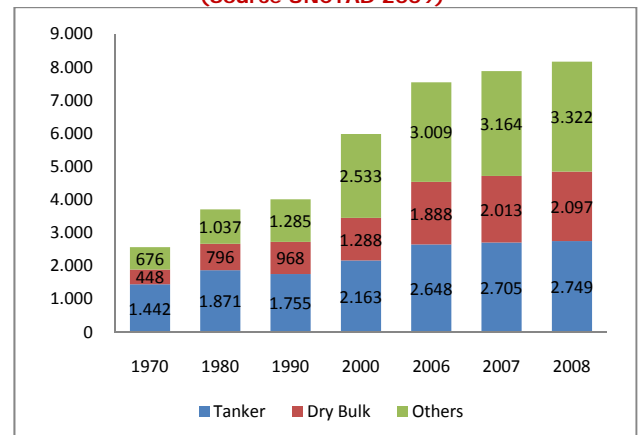
Urban Development and Coastal Defence

Population worldwide is growing, especially in coastal areas. According to the United Nations, three billion people are living along thousands of kilometres of coastal zones. In 2008, more people were living in urban areas rather than rural areas, and this will increase up to nearly 70% in 2050. Eight out of the ten largest cities in the world are located along a coast. In those cities live people that need space and safety. And despite the economic downturn, they still have nearly the same as last year to invest and spend. Along coasts, people are confronted with strong fluctuations in atmospheric conditions and a predicted rise of sea levels (source: IPCC 2007). Although there are substantial annual fluctuations, it seems that the frequency and intensity of storms is increasing, enlarging the need for effective and sustainable coastal defence. For many years, urban development has been a strong driver for the dredging industry and it is expected to continue to be an important ongoing driver.

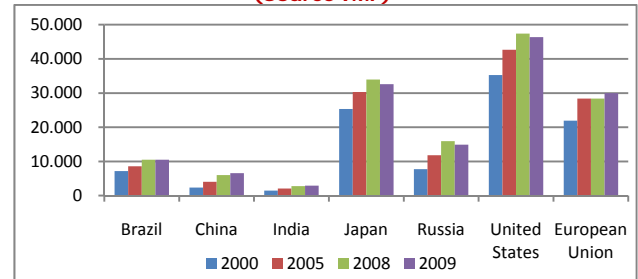
Energy

Despite attempts to find alternative fuel sources, fossil fuels still dominate our energy needs. Offshore resources need dredging to prepare the seabed and dig the trenches for pipelines, and then protect these pipelines by backfilling with sand, gravel and rock. The strong increased demand for liquefied natural gas (LNG), frequently being exported from remote locations, thereby necessitating new port infrastructures, creates a maritime infrastructure demand of its own. On the sustainable side, more and more wind farms are being placed at sea. In 2009, Energy related dredging accounted for an estimated 18% of the total dredging market.

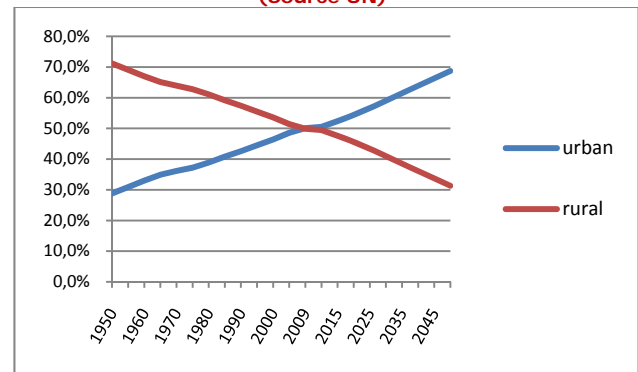
Global seaborne trade 1970-2008 in mln ton
(Source UNCTAD 2009)



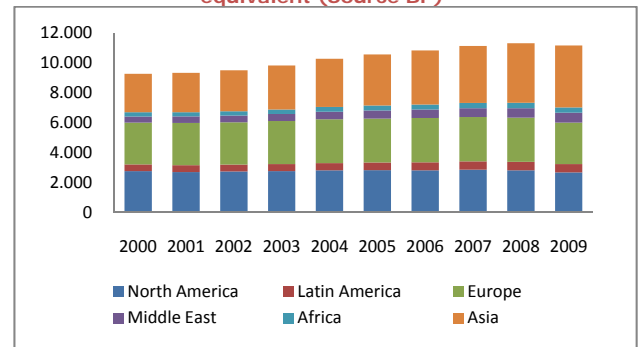
Gross domestic product 2000-2009 in PPP per capita in \$
(Source IMF)



Relation urban-rural civilisation
(Source UN)



Global energy consumption 2000-2009 in mln ton oil equivalent (Source BP)



² In 2009, global trade volume decreased with 11,3%. For 2010 and 2011 a growth of 9% and 6,3% is predicted (source: IMF July 2010)

Tourism and Leisure

Due to the economic recession, international tourism decreased by 5% in 2009. Despite this decline, the long term perspectives remain very positive. From the Gulf of Mexico to the Mediterranean Sea from the United Arab Emirates to Australia's Gold Coast, tourism in or near water attracts millions of visitors annually. Water-related tourism has become an important source of national income for many countries. Marinas and cruise terminals, theme parks and resorts; dredging is directly and indirectly an important means by which more tourism can be developed.

Dredging for recreation and tourist attractions has often been a spin-off of coastal defence activities such as beach replenishments. Nowadays, tourism is a driver for dredging in its own right, accounting for an estimated 5% of 2009's turnover.

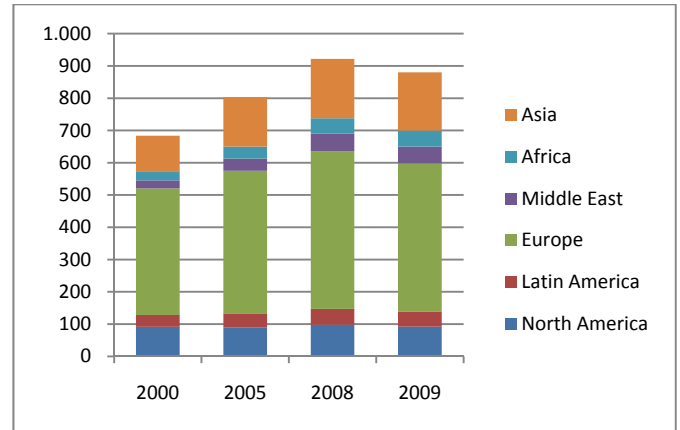
Dredging has grown faster than its drivers

While all drivers for dredging have developed favourably since 2000, most of them have grown at a moderate rate. Yet in the dredging industry itself, turnover has more than doubled.

Why has dredging grown faster than its drivers? The answer lies in innovation and sustainability. Modern dredgers can dig deeper and retrieve material from greater distances. Dredging vessels are being built ever larger, with more technology and high-tech systems. This has made it possible to make the industry even more cost efficient. Furthermore, the amount of know-how that has been collected over the decades with in-depth engineering and environmental expertise, combined with a highly skilled workforce, is allowing the industry to take on ever larger and complex projects.

This innovative spirit in the industry has created new markets and contributes to sustainable development.

International tourist arrivals 2000-2009 in mln
(Source UNWTO)



Development capacity 2000–2009

Dredging is carried out by specially developed equipment that varies widely, comes in many sizes and types, and includes mainly water-based equipment. Dredging equipment, classified according to the methods of excavation and operation, can be grouped into the following main categories:

- mechanical dredgers (backhoes, grab and dipper dredgers) are well suited to removing hard-packed material or debris and to working in confined areas.
- hydraulic dredgers (hopper and cutter dredgers) add large amounts of process water and thus change the original structure of sediments; they "slurry the sediment". Transport methods associated with hydraulic dredgers are pipeline and hopper transport. In some cases, hydraulic dredgers may pump the materials into barges for transport.

The selection of dredging equipment for a particular project will depend on a combination of factors including the type of physical environment, the method of placement, the distance to the disposal site as well as the nature, quantity and quality of the material to be dredged.

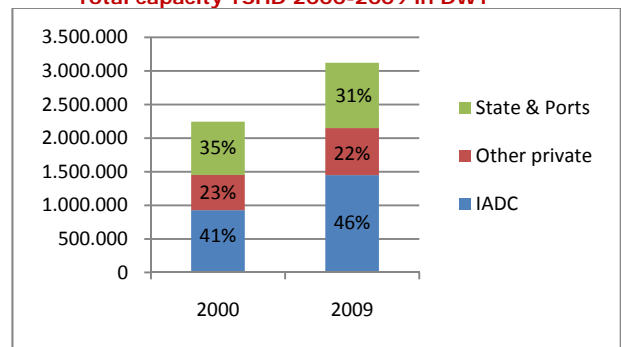
Analysing the developments in capacity of dredging equipment is a difficult task. Many dredging vessels are inland vessels and may not be mentioned in any ship register. Furthermore, comparing the capacity of a backhoe with a trailing suction hopper dredger or a 20-year old dredger with a high-tech newly built vessel is impossible. Consequently, this analysis cannot be based on complete records and instead focuses on the main types of equipment: trailing suction hopper dredgers (TSHD), cutter suction dredgers (CSD) and backhoe/grab/dipper dredgers. For 2009 1,256 vessels have been identified of which 271 backhoes, 457 CSDs and 528 TSHDs.

For TSHDs capacity is measured in deadweight tonnage (carrying capacity), for CSDs and backhoes in total installed diesel power in kW. Vessels are further categorised by type of owner: state- and/or port-owned plant, private dredging contractors that are members of IADC, and other private dredging contractors, whether operating in free or in closed markets. In closed markets only homeland contractors may make a bid for a governmental tender.

The total industry capacity of TSHDs has increased by 39% since 2000 to 3.1 mln deadweight tonnes in 2009.

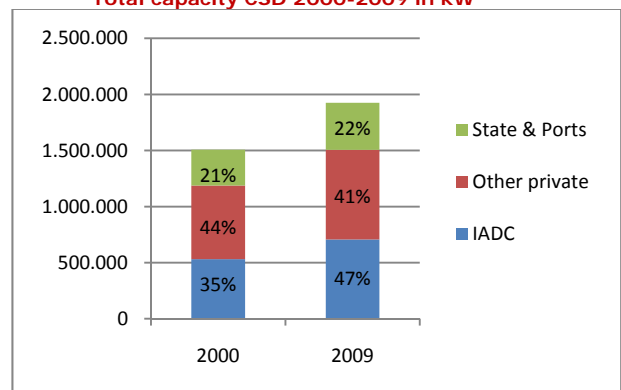
The share of IADC member companies in TSHD capacity increased from 41% to 46%. Most of this increase is due to medium, large and jumbo high-tech vessels. The increase in state- and/or port-owned vessels is substantially related to China.

Total capacity TSHD 2000-2009 in DWT



The total capacity of CSDs increased with 28% since 2000 to 1.9 mln installed kW. Some new, larger sea-going CSDs have replaced older cutters. The growth of state- and/or port-owned CSDs since 2000 is nearly all related to China.

Total capacity CSD 2000-2009 in kW



The total capacity of backhoe/grab/dipper dredgers has increased with 13% since 2000 to 238,000 total installed kW. IADC members' capacity went up to a share of 27%.

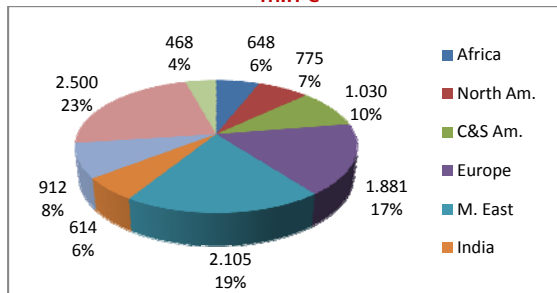
Total capacity backhoe/grab/dipper 2000-2009 in kW



Regional market size

In 2009, the Middle East, Europe and China were the largest dredging markets representing 59% of global turnover. For this review, Europe includes Turkey, Western Russia and the Black Sea countries. Eastern Russia, Caspian Sea countries, Japan and SE Asia are included in Asia.

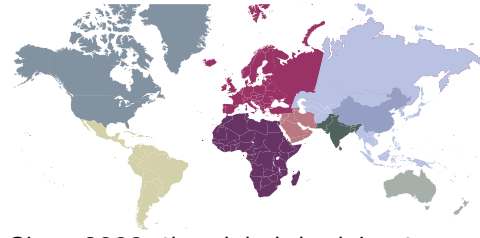
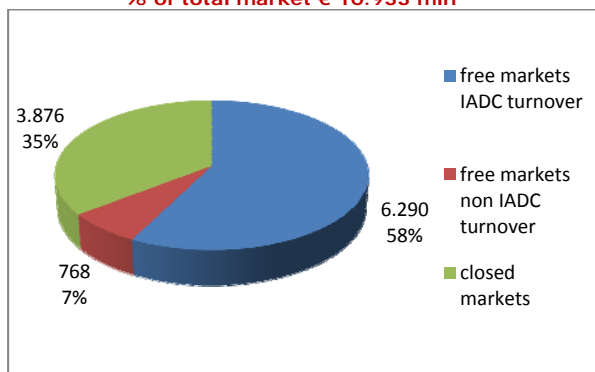
Turnover 2009 global dredging market per area in mln €



	in mln €		
	free markets	closed markets	total 2009
Africa	561	87	648
Centra/South America	997	33	1,030
Australia	464	3	468
Europe	1,853	28	1,881
Middle East	1,822	283	2,105
India	614	0	614
Asia	651	261	912
China	80	2,420	2,500
North America	15	760	775
total *	7,058	3,876	10,933
	65%	35%	

*) of which stone works € 739 mln

Dredging market shares 2009
% of total market € 10.933 mln



Since 2000, the global dredging turnover nearly tripled. Compared to 2008, turnover in 2009 increased by nearly 7%, however, as indicated in the introduction, an improved data source for the closed markets [China, US and Japan] lead IADC to believe that data reported prior to 2009 may have been understated and that this apparent growth may therefore be overstated. Not all regional markets have grown at the same pace. Compared to 2008, the Middle East market dropped by more than 30%. The Chinese market is now over six times larger than in 2000, although comparability of data may also be a contributing factor. The Australian market increased more than fivefold since 2000. Dredging turnover in Europe more than doubled from € 800 mln in 2000 to nearly € 1,9 mln in 2009.

The volume of dredging executed by state-and/or port-owned companies as well as dredging projects closed to international tenders is still substantial, with China as no. 1 and the USA no. 2. In China, some projects are open for international tenders. The USA market is effectively closed by the Jones Act, which makes it impossible for a non-USA owned and controlled contractor to tender. In India, state-owned DCI has a preferred position in public tendering, although foreign companies historically also from time to time have been active in the private sector. Globally, the market share of these closed markets was 39% in 2009.

The market share of private contractors that are members of IADC increased from 43% (2000) to 58% in 2009. When looking only at markets with free access, IADC members represent a total of 89% market share (2000: 75%).

Quantity of dredged material

Dredging around the world in financial terms, such as turnover, is quantifiable. However, the total amount of m³ dredged annually is not published by the industry. It makes little sense to do so, since dredging a cubic metre of silt is not the same as a cubic metre of rock. The total amount of dredged material annually depends heavily on the specific projects and circumstances (soil, accessibility, sailing distances, etc.), which have a large impact on production.

Definitions and methodology

This review relates to the annual turnover estimated for 2009. 'Carried out in 2009' therefore does not necessarily mean 'contract awarded in 2009', nor that payment was received in 2009. It only reflects work that was actually performed in 2009. For projects only partially performed in 2009 (e.g. a project started on 1-1-2008 and finalised on 30-6-2009), the value of the part actually executed in 2009 has been attributed.

Dredging projects in inland waterways – as far as known – are included in the survey as well as stone protection works for quay walls and coastal protection (but excluding stone dumping through FFP vessels and stone-dumpers). Only 'wet work' has been calculated in the figures so no land-based 'dry' engineering works are included. Ecological measures and remedial dredging as such are integrated in the other categories.

Types of projects

Trade:

- harbour extensions (excluding offshore crude oil terminals and LNG terminals (see Energy) and excluding marinas and cruise terminals (see Tourism))
- navigation channels
- maintenance dredging

Coastal defence:

- beach replenishment
- dike building/raising and flood defence works (wet work only)
- other shore protection measures

Urban development:

- land reclamation for:
 - industrial infrastructure (oil refineries, chemical plants, waste treatment plants, waste disposal sites, waste water treatment plants, water desalination plants, power plants, etc.)
 - trade and service infrastructure (trade fairs, business parks, conference centres, etc.)
 - transport infrastructure (airports, roads, parking facilities, rail projects, etc.)
 - residential real estate (housing driven by demographical pressure)
- immersed tunnels, dams and bridges
- outfalls
- controlled storage building for contaminated materials

Energy:

- offshore crude oil terminals and LNG terminals
- cables and pipelines (including backfilling and protection)
- dredging related to oil drilling facilities (e.g. platforms, glory holes)
- other offshore installations (e.g. wind farms)

Tourism:

- recreation (theme parks, recreation piers/wharfs, shopping malls)
- marinas and cruise terminals
- land reclamation for hotels, holiday resorts, beaches, etc.

Methodology

Dredging in Figures has been carefully compiled by a Delphi survey amongst IADC members, analysis of company reports and other (public) sources. All information has been verified to the best of our ability, but we cannot be held responsible for any inaccuracies. The review does not necessarily reflect the opinions of individual IADC members. Please contact IADC if you wish to reproduce any or all information in this review either electronically and/or in any other form.

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International Association of Dredging Companies (IADC) is the global umbrella organisation for contractors in the private dredging industry. As such IADC is dedicated to promoting not only the skills, integrity and reliability of its members, but also the dredging industry in general. The information presented here is part of an ongoing effort to support clients and others to understand the fundamental importance of dredging and maritime construction.