

# ANNUAL REPORT 2013





## Dear client, dear partner,

Last year we marked a major milestone: we entered our first half-century of existence.

In this year's annual report, we want to feature more than our 2013 activities and results. We want to share with you some of our most significant and representative accomplishments over the past 50 years.

Going forward, we hope to continue working closely with you as we pursue our quest: solving the world's toughest challenges in water environments.

Best regards,  
DHI Group Marketing and Communications  
[marketing@dhigroup.com](mailto:marketing@dhigroup.com)



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# 1. CEO MESSAGE

“We're using our global knowledge and our local teams to solve ever more complex water challenges, develop ground-breaking solutions and provide specialised services to industries.”

– Antoine Labrosse, CEO

## CEO MESSAGE

Countries around the world face unique and ever more complex water challenges. Utilising our global knowledge, our local teams help solve them. In Chile, we're making fish farming more sustainable and secure by helping to minimise the spread of diseases. In 2013, we assisted Thailand with improving their flood management in order to save lives and protect against property damage – and we're continuing to provide support. And in South Africa, we're helping water authorities get a grasp on their precious water information.

We're also providing specialised services to industries. The booming coal seam gas (CSG) mining industry desperately needs help managing large amounts of produced water. We're helping them forecast pumping requirements and where they should pump produced water to avoid overflows.

We're continuing to develop ground-breaking solutions. For example, we're helping wastewater treatment plants become energy self-sufficient. We're also helping the offshore industry manage sound-related impacts on marine animals using acoustic modelling. These are just a few examples of how we use our research and development (R&D) to craft innovative and sustainable solutions to meet our clients' unique needs in water environments.

Our future is bright. We will extend our local presence to new countries, such as Turkey and Indonesia. We will also continue targeting our R&D to the specific needs of our clients – our exciting new interactive WaterData by DHI platform, for example, enables them to access worldwide water data in real time.

With you, we look forward to further fulfilling our quest of solving the world's toughest challenges in water environments – in 2014 and beyond.



Antoine Labrosse, CEO



## 2. OUR HISTORY

Last year we marked a major milestone: we entered our first half-century of existence.

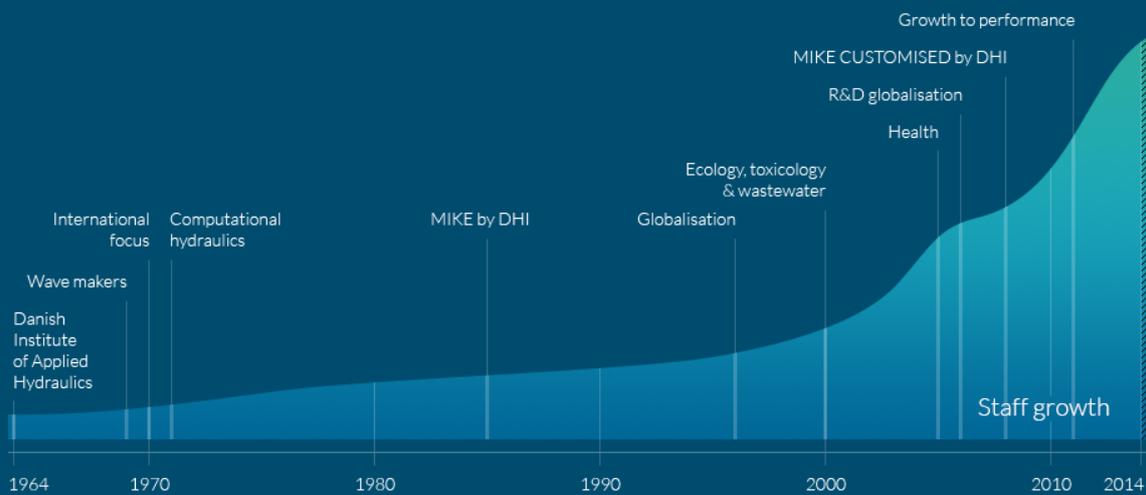
Read more about our 50-year anniversary online:



Learn more in the following pages about our historical milestones.

## OUR HISTORY

In 50 years, we've grown from a handful of passionate modellers in Denmark focusing on waves and currents to a 1,100 people strong global organisation working on projects in more than 140 countries. We became the expert in all water environments.



## 1964 - DANISH INSTITUTE OF APPLIED HYDRAULICS

In 1964, the Danish Academy of Technical Sciences established the Danish Institute of Applied Hydraulics (Vandbygningsinstituttet), which later became known as DHI. An independent, not-for-profit institution, we were an offspring of the Technical University of Denmark.

## 1969 - WAVE MAKERS

We developed a pioneering method for the production of irregular waves in hydraulic model testing using a direct reproduction of measured time series from nature. This led to the development of our first irregular wave generator – a major step forward in hydraulic modelling. Up until this point, the prevalent approach was to use regular waves, which weren't a true representation of how natural waves behave.



## 1970 - INTERNATIONAL FOCUS

We've understood the importance of having a global perspective since the 1970s. Soon after we were established, we began working on a number of projects in other countries to gain experience solving water-related challenges outside of Denmark.

## 1971 – COMPUTATIONAL HYDRAULICS

With a contribution from the Danish Research Council, we created the Computational Hydraulics Centre (CHC). CHC was a special unit within DHI that focused on the development of numerical modelling software. By the late 1970s, CHC developed the core numerical engines for the tools that would later become our MIKE by DHI software.

## 1985 – MIKE BY DHI

The work of the CHC led to the development of modelling software that could accommodate a large range of possible situations within one area of application. Previously, this software could only run on large mainframe computers. With the advances in microcomputers, however, we began developing numerical modelling software that could run on personal computers – later named MIKE. We used independent sales agents around the world to sell this software.

## 1996 – GLOBALISATION

The success of our MIKE by DHI software led to the creation of a spin-off consultancy market. To meet this need, we began opening offices around the world – in many cases by hiring the sales agents who sold our MIKE by DHI software in their home countries and turning them into DHI employees.

## 2000 – ECOLOGY, TOXICOLOGY AND WASTEWATER

In the 1990s, we established the Ecological Modelling Centre (EMC) in collaboration with the Water Quality Institute (VKI). Together, we developed water quality models and applied them in numerous environmental studies. Our merger in 2000 with VKI was a natural step after years of close collaboration. With this merger, we were better able to fulfil our clients' needs for a more holistic approach to solving their water challenges related to hydrology, groundwater and agriculture.

## 2005 – HEALTH

We were already looking at the impact of toxic chemicals on the environment. This is closely related to the impact of toxic chemicals on humans, which was the focus area of the Danish Toxicology Centre (DTC). Our merger with DTC in October 2005 brought together these complementary competencies, enabling us to further develop and build our ecotoxicology expertise. Thus far, this synergy has been harnessed to the greatest extent in the industrial sector.

## 2006 – R&D GLOBALISATION

Approximately a third of our business focuses on research and development (R&D). To maintain this ratio, we realised it wasn't enough to globalise our company – we had to globalise our R&D as well. To do this, we set up our first major research hub outside of Denmark in Singapore. This has helped ensure that the knowledge gained from our research efforts is spread throughout our organisation.

## 2008 – MIKE CUSTOMISED BY DHI

Our clients are dealing with more and more data as well as more complicated decision processes. They need to make sense of large amounts of data. To meet this need, we developed our MIKE CUSTOMISED brand. Our MIKE CUSTOMISED by DHI solutions – often embedded with a MIKE product to analyse data – enables clients to extract meaning from big data.

## 2011 – GROWTH TO PERFORMANCE

After several years of growth – both in terms of our offices and the number of our employees – we are focusing on consolidation. This includes enhancing the collaboration between our offices to maximise resources and performance, ensuring the continued high quality of our products and services.



## 3. OUR FOOTPRINT

Working together with our clients and partners, we've left our footprint in the world of water – by building knowledge, advancing technology and providing innovative operation optimisation and decision support solutions.

Today, we want to share with you some of our most representative accomplishments from the past 50 years, which have paved the way to solving some of the world's toughest challenges in water environments.

## WATER SUFFICIENCY

### **Nile Basin Decision Support System – Setting the ground work for achieving equitable water sharing in water scarce regions**

A Decision Support System to help manage water resources – in cities, across countries and throughout regions.

More than 200 million people spread across eleven countries depend on the Nile River for food, irrigation and energy. An increasing population and economic growth in the region has put more pressure on the river’s limited resources. We helped the Nile Basin Initiative (NBI) – which represents ten of the Nile Basin’s riparian countries – equitably manage the river’s resources.

Together with the NBI, we developed the Nile Basin Decision Support System (NB DSS), driven by our MIKE CUSTOMISED PLANNING software. Today, the NBI countries have a transparent and objective way to share information, enabling water authorities to cooperatively and sustainably use the Nile’s water.

The knowledge gained from this project has been used to develop customised Decision Support Systems (DSSs) around the world. Our DSSs are enabling countries to manage one of their most precious resources – water. By allowing countries to efficiently manage their water, we’re helping ensure there is enough to meet their needs – now and in the future.

**Learn more by reading our online publications:**



MIKE CUSTOMISED by DHI overview flyer



Nile basin Signature project – Helping ten countries share the water resources of a 3 million km<sup>2</sup> river basin.



Surface and groundwater area of expertise overview flyer



CARM Australia Signature project – Over 1,600 km of river with two dams and thousands of water users. One river management system.

## FOOD SECURITY

### **Safe Water for Food – Increasing food security in the face of climate change**

Investigating the use of low quality water for agriculture in order to increase food production.

In many African countries, the fresh water required for food production is in short supply. The future effects of climate change will further aggravate this problem. As such, agriculture will increasingly depend on the use of low quality water (grey water) for irrigation – in particular to increase urban production. Since 2012, we have been supervising the Safe Water for Food project – which evaluates food safety and health hazards of using grey water for food production.

Today, the Safe Water for Food project is conducting risk assessment-based and policy-oriented research in Ghana and Tanzania. The results of the project will help decision makers in the area formulate policy to promote the safe use of grey water for food production in the future. We're working directly with researchers in Ghana and Tanzania to help build capacity, ensuring the knowledge gained benefits the region.

One of the aims of the project is to add to the World Health Organization's (WHO) knowledge and contribute to updated guidelines on the use of grey water for agriculture. Previous WHO guidelines were based on only a few pathogens in grey water. This project will examine other pathogens as well as chemicals found in grey water. With a better understanding of how grey water can be used for agricultural purposes, countries with fewer fresh water resources will be able to increase their food production.

**Learn more by reading our online publications:**



Product safety and environmental risk area of expertise overview



Safe Water for Food project

## SUSTAINABLE CITIES

### **MOUSE – Paving the way to optimised water networks in cities**

MOUSE (M<sub>O</sub>del for Urban SEwers) is the first PC-based program to model urban water collection systems.

We released the first version of MOUSE in 1985 – the same period as the emergence of personal computers. Originally designed to model pipe flows, we gradually enriched MOUSE with more functionality, including the ability to model the runoff process, calculate optimal pipe design, and simulate real-time control schemes, sediment transport, water quality processes, and so on. We also made certain that MOUSE evolved in sync with the development of personal computers and operating systems, from UNIX and Microsoft DOS to the successive versions of Microsoft Windows. We increased its performance and therefore ensured that it remained the most useful modelling software year after year.

Today, the MOUSE engine is used in our MIKE URBAN hydraulic modelling software. MIKE URBAN encapsulates decades of accumulated knowledge and experience in urban water environments. It models all water in a city, including sewers, storm water drainage systems and water distribution systems. In many countries, MIKE URBAN is now the de facto standard for urban water modelling – it is the preferred choice of most municipalities as well as consultants. Currently, we count more than 3,000 users of our software around the world.

Our MOUSE-powered software has been used in tens of thousands of projects worldwide to optimise and sustainably manage water networks in cities. We continuously strive to further develop our product and support its widespread implementation. By so doing, we globally contribute to more efficient and sustainable water management in cities.

#### **Learn more by reading our online publications:**



MIKE URBAN product flyer



EL CAJON - Controlling flooding in a city of 100,000 people.



Urban water area of expertise overview flyer

## EFFICIENT INFRASTRUCTURE

### **Aarhus Water – Setting the ground work for improving infrastructure efficiency through better data integration management**

Optimising wastewater treatment processes using our Data Integration Management System (DIMS).

Aarhus Water is the local water supplier and storm and wastewater service provider for Denmark's second largest city. Its ten wastewater treatment plants receive 35 million m<sup>3</sup> of wastewater a year. As the city continues to grow, Aarhus Water needed a cost-effective way to increase their wastewater treatment efficiency and capacity. Instead of adding expensive new machinery and tanks, Aarhus Water turned to us to help them optimise their wastewater treatment process.

Our Data Integration Management System (DIMS) acquires real-time data from sensors using the existing SCADA system as a frontend. New set-points – calculated and validated using the data – are communicated back to local control loops in the SCADA. This helps Aarhus Water run their treatment processes under the best conditions, saving them EUR 700,000 a year and reducing their environmental and CO<sub>2</sub> footprint.

From Aarhus to Cape Town, we've used DIMS to improve water and wastewater infrastructure efficiency in cities big and small. By doing so, we're helping cities around the globe save money and reduce their environmental impact.

**Learn more by reading our online publications:**



MIKE CUSTOMISED by DHI  
overview flyer



Aarhus Signature project –  
Saving EUR 700,000 a year  
by optimising wastewater  
treatment processes.



Industry area of expertise  
overview flyer



Capetown Signature project –  
Saving EUR 700,000 a year  
by optimising wastewater  
treatment processes.

## CLIMATE ADAPTATION

### **River modelling in Bangladesh – A large leap forward in flood modelling and capacity building**

Setting new standards for flood modelling through the development of unprecedented, comprehensive river and flood plain models that cover all of Bangladesh.

The devastating flood in Bangladesh in the late 80s highlighted the need for a better knowledge of the country's river system. As part of a UNDP/World Bank-funded project that began in 1986, we used our MIKE by DHI software suite to generate models that covered Bangladesh's entire river network – one of the world's most complex.

As a result of this project – and subsequent projects financed by the Danish International Development Agency (DANIDA) – the Surface Water Modelling Centre (SWMC) was established.

A comprehensive Flood Action Plan (FAP) was also established for Bangladesh following the devastating flood in the country. The FAP consisted of more than 20 comprehensive flood studies – many of which relied on modelling results successfully produced by SWMC in collaboration with us. This tremendous modelling effort resulted in the establishment of state-of-the-art modelling capability at SWMC as well as a surge in our expertise within this field.

Today, the Institute for Water Modelling (as SWMC is now known) has more than 200 engineers. They conduct river hydraulics and morphology, coastal hydraulics, and groundwater modelling as well as hydrographic and topographic surveys in Bangladesh and neighbouring countries. The Centre is fully self-sufficient and generates its own revenue through consultancy work. It is one of our partners for projects in Bangladesh and the region.

Our work on the FAP helped us to secure our position as the world's best flood modeller and to mature our unparalleled flood modelling software – MIKE 11. The detailed models we have developed during the 90s to support the FAP have been continuously maintained and further developed. They are part of the foundation of the Flood Forecasting and Warning Model of Bangladesh and constitute the modelling core of many water-related projects in the region.

## OUR FOOTPRINT

Learn more by reading our online publications:



MIKE 11 product flyer



Thailand Signature project –  
Protecting millions of lives in  
Thailand against devastating  
flooding.



MIKE by DHI overview flyer



Vietnam Signature project –  
Protecting over 10 million  
people from floods.



Climate change area of  
expertise overview flyer



El Cajon Signature project –  
Controlling flooding in a city of  
100,000 people.



Institute for Water Modelling

## ENVIRONMENTAL PROTECTION

### **20 years of Environmental Impact Assessments (EIAs) – Sharing our expertise worldwide to protect the environment**

Specialist EIA techniques and models determine how even the most stringent environmental targets can be met.

We pioneered our EIAs in Denmark in the Great Belt, first supporting the construction of the Øresund Bridge in the 1990s, and subsequently other major projects in the region.

In the decades that followed, we expanded our expertise to the Asia-Pacific region by conducting several EIAs for many large projects. These included the design of Turtle Island, a recreational development which necessitated reclaiming 20 million m<sup>3</sup> of land from the sea on the south-eastern coast of Bali, as well as a land reclamation project on Singapore's Ular islands, which involved the relocation of several thousand corals. We've also used our years of expertise and experience to support major projects in Europe, such as the construction of the Fehmarn Belt Fixed Link connecting Germany and Denmark.

Over the years, we've regularly upgraded our EIAs to include extensive investigations and studies. These accurately describe the potential impact of dredging and reclamation operations as well as the construction itself on a broad range of key environmental parameters. We assess the potential impacts on water exchange, currents and waves, turbidity and sedimentation, water quality, marine habitats, bird migration, coastal morphology, nearby human activities such as fisheries, and so on. This has helped strengthen our position as EIA experts.

Our work has helped minimise environmental damage from large construction projects across the world. Going forward, we will continue to work towards projects having zero impact on the ever-changing environment by working together with our clients and partners.

## OUR FOOTPRINT

Learn more by reading our online publications:



Environment & ecosystems  
area of expertise overview  
flyer



Singapore Signature project –  
Preserving one country's  
largest remaining tract of  
mangrove forests.



Malaysia Signature project –  
Building a 1.8 km long deep  
water jetty with minimal  
environmental impact.



Jakarta Signature project –  
Ensuring the sustainable  
coastal development of an  
area 28 million people call  
home.





# 4. OUR FUTURE

Going forward, we will continue our dedication and commitment to these critical problems that top the global agenda.

We look forward to accumulating more knowledge, further advancing our technology and always working closely with you to realise our quest: solving the world's toughest challenges in water environments.





## 5. OUR 2013 ACTIVITIES

Last year, we worked closely with you to help you solve your toughest water-related challenges.

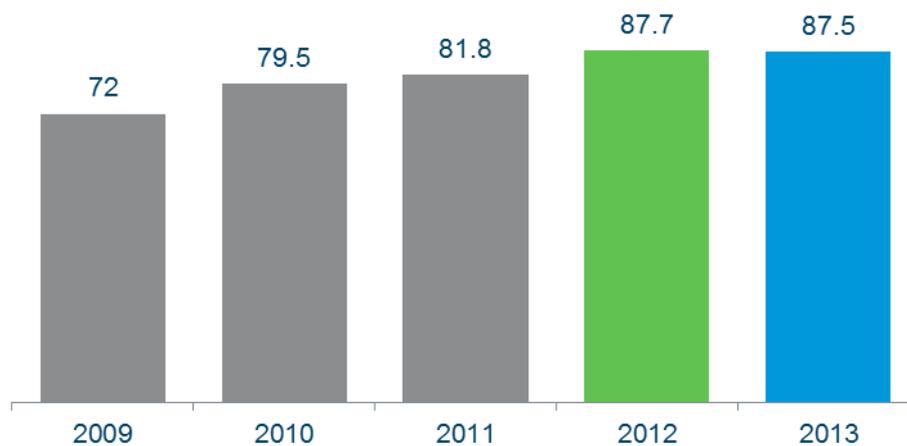
We achieved this goal by making our global knowledge accessible to you – by channelling it through our local teams and unique software.

Discover our case stories online:



## OUR 2013 FINANCIAL PERFORMANCE

### NET REVENUE IN MILLION EURO



Primarily due to currency losses following the general strengthening of EUR against almost all other currencies, 2013 ended with a lower than expected Group result: a profit of EUR 0.4 million compared to EUR 3.0 million in 2012 and a budget for the year of EUR 3.5 million.

Earnings Before Interest, Taxes, Depreciation and Amortisation (EBITDA) totalled EUR 6.3 million in 2013, compared to EUR 6.2 million in 2012. The net revenue for the Group was EUR 87.5 million, the same level as in 2012.

The average number of employees in the Group was 1,045 compared to 1,028 in 2012.

The Group was able to maintain its strong cash position in 2013 and had free cash and securities totalling EUR 28.6 million by the end of the year.

The budgeted profit for 2014 is EUR 2.8 million, which is considered to be realistic. The start to 2014 has been very promising.

**Group figures in 1000 EUR.**

	Profit & loss		
	2013	2012	2011
Gross revenue	108.888	107.927	105.716
Net revenue	87.466	87.708	81.796
Salaries & operational expenses	-84.203	-84.003	-76.825
Profit before financial income & expenses	3.263	3.705	4.971
Net financial income	-1.517	534	-95
Profit for the year before tax and minority interests	1.746	4.239	4.876
Tax	-1.100	-1.050	-498
Minority interests	-209	-172	-130
Profit for the year	437	3.017	4.248
	Assets		
	2013	2012	2011
Fixed assets	7.884	9.316	8.203
Contracted work in progress	3.575	2.083	1.860
Receivables	25.836	27.693	23.140
Cash and securities	28.613	30.216	31.983
Assets	65.908	69.308	65.186
	Liabilities		
	2013	2012	2011
Equity	32.513	33.163	29.948
Minority Interest	966	971	970
Long term debt	4.862	5.395	5.646
Short term debt	27.567	29.779	28.622
Liabilities	65.908	69.308	65.186

**Ledelsespåtegning**

Ovenstående koncern tal er udtaget fra den reviderede årsrapport per den 31. Dec. 2013. Det er vores opfattelse at de summariske tal er i overensstemmelse med årsrapporten på enhver tænkelig måde.

**Management's Statement**

Above listed figures for the group are derived from the audited annual report for the year ended 31. Dec. 2013. In our opinion the summarized figures are consistent in all material respect with the annual report.

Hørsholm, 23 April 2014



Antoine Labrosse  
Managing director

Hørsholm, 23 April 2014



Peter Rasmussen  
Finance director

**Erklæring afgivet af uafhængig revisor**  
*Independent Auditor's Statement*

**Til bestyrelsen i DHI**

Medfølgende "Sammendrag af finansiel stilling" (regnskabssammendrag) for DHI, der omfatter resultatopgørelse, balance og ledelsespåtegning, er udtaget af selskabets reviderede årsregnskaber for regnskabsårene 2011, 2012 og 2013. Vi har udtrykt konklusioner uden modifikationer i vores erklæringer af henholdsvis, 26. april 2012, 24. april 2013 og 23. april 2014. Årsregnskaberne og regnskabssammendraget afspejler ikke indvirkningerne af begivenheder, der er indtruffet efter datoerne på vores erklæringer om de respektive årsregnskaber.

Årsregnskaberne som regnskabssammendraget er udtaget af er aflagt i overensstemmelse med årsregnskabsloven. Regnskabssammendraget indeholder ikke alle de oplysninger, der kræves i henhold til årsregnskabsloven og kan derfor ikke læses som erstatning for de reviderede årsregnskaber for DHI.

**Ledelsens ansvar for regnskabssammendraget**

Ledelsen er ansvarlig for udarbejdelsen af et regnskabssammendrag af de reviderede årsregnskaber i overensstemmelse med årsregnskabslovens indregnings- og målekriterier.

**Revisors ansvar**

Vores ansvar er at udtrykke en konklusion om regnskabssammendraget på grundlag af vores handlinger, som er udført i overensstemmelse med ISA 810, Opgaver vedrørende afgivelse af erklæring om regnskabssammendrag, og yderligere krav ifølge dansk revisorlovgivning.

**Konklusion**

Det er vores opfattelse, at regnskabssammendraget, der er udtaget af de reviderede årsregnskaber for DHI for 2011, 2012 og 2013, i alle væsentlige henseender er konsistent med disse regnskaber i overensstemmelse med årsregnskabslovens indregnings- og målekriterier.

København, 23. april 2014

**PricewaterhouseCoopers**

Statsautoriseret Revisionspartnerselskab



Jacob F. Christiansen  
statsautoriseret revisor

*State Authorised Public Accountant*

**To the Supervisory Board of DHI**

This "Summary of financial status" (Summary) for DHI, which comprises income statement, balance sheet and Management's Statement, was extracted from the Company's audited Financial Statements for the financial years 2011, 2012 and 2013. We have issued unqualified auditor's reports of 26 April 2012, 24. April 2013 and 23. April 2014, respectively. The Financial Statements and the Summary do not reflect the impact of events occurred after the dates of our auditor's reports on the various Financial Statements.

The Financial Statements from which the Summary has been extracted were presented in accordance with the Danish Financial Statements Act. The Summary does not include all the information required under the Danish Financial Statements Act and therefore cannot be read instead of the audited Financial Statements of DHI.

**Management's Responsibility for the Summary**

Management is responsible for the preparation of a Summary of the audited Financial Statements in accordance with the Danish Financial Statements Act's criteria for recognition and measurement.

**Auditor's Responsibility**

Our responsibility is to express a conclusion on the Summary based on our procedures which were performed in accordance with ISA 810, Engagements to report on summary financial statements, and additional requirements under Danish audit legislation.

**Conclusion**

In our opinion, the Summary of DHI, which has been extracted from the audited Financial Statements of DHI for 2011, 2012 and 2013, is in all materiality consistent with these Financial Statements in accordance with the Danish Financial Statements Act's criteria for recognition and measurement.

Copenhagen, 23. April 2014



Ulrik Ræbild  
statsautoriseret revisor

*State Authorised Public Accountant*



## We look forward to a vibrant 2014.

New challenges, novel solutions, greater value.

We look forward to always working more efficiently with you.

 **Contact us at [marketing@dhigroup.com](mailto:marketing@dhigroup.com)**

Best regards,  
DHI Group Marketing and Communications  
[marketing@dhigroup.com](mailto:marketing@dhigroup.com)