RISK CONSULTING

IF'S RISK MANAGEMENT JOURNAL 1/2015

Connecting Copenhagen

Insurance in Africa

Preparing for breakdown

The dangers of flooding

Reduce the unknown

BEING THE LARGEST insurer for companies in the Nordic region we are in close touch with our customers. We aim to give our best advice to keep businesses running, and to avoid expensive damages and claims – for both parts. Despite our joint efforts, there are situations when we are surprised when a claim occurs; why hadn't anyone in the enterprise thought of that particular detail?

"We can be better perpared for the unknown by sharing experiences."

That's why we are urging all our clients to reduce the unknown. It's a challenging task, however we find it very worthwhile. In the world of today, much effort is spent on reducing risk and we foresee that those efforts will continue to increase.

However, not all unknown can become known. Thus, there is a need to have a plan for how to handle the situation if the unknown hits you. How will you deal with the crisis? A part of that plan is crisis communication, a subject that you can read more about on page 24–25 in this magazine.

One of the reasons for making Risk Consulting Magazine is to share our knowledge. We believe that we all can be better prepared for the unknown by sharing experiences.

I think that many of the articles in this edition are indeed "news for use". You can read about the implications on "Obamacare" for Nordic companies present in the USA and it's also much learning in the article about Kongsberg Group and flood risks. Just to mention some of the useful content.

I wish you good reading and a nice summer!

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MARK BOULTON / ALL OVER PRESS

Flooding – cars and lorries partly submerged on a flooded road into Newtown Tewkesbury Gloucestershire UK following unprecedented flooding.

Flood Re about to be launched in 2015

THE FLOOD RE scheme in the UK will be a not-for-profit flood reinsurance fund, owned and managed by the insurance industry, and established to ensure that those domestic properties in the UK at the highest risk of flooding can receive affordable cover for the flood element of their household property insurance.

Insurers will sell insurance in the normal way, and have an incentive to compete for the business of customers with high flood risk because they know they can pass the flood component element of the policy into Flood Re.

The insurance industry is paying the £10m set up costs to get Flood Re up and running. The Flood Re pool itself has two sources of income. The first is the flood element of the policies which are passed into it. The second is an additional levy on the industry, equivalent to the existing cross-subsidy that exists in the market.

A comparable, albeit different, scheme is Pool Re which covers insurers for loss incurred by terrorism and where some insurers choose to reinsure policies sold in case the losses are very high. This was set up in the 1990s after the IRA bombing of the City of London made insuring commercial risk prohibitively expensive. ■

Resilience to extreme weather

How to reduce the impact of extreme weather today while preparing for future changes? Answers are provided by the Royal Society (RS) in a report "Resilience to extreme weather". The report investigates key questions to help inform important decisions about adaptation and risk reduction. RS has examined people's resilience to weather- and climate-related extreme events. They look at how to protect lives and livelihoods by comparing the options available.

The changing insurance landscape

according to KPMG, UK

1. **Customer focus.** Insurers handle large amounts of data but few have yet to use that information to both excel in customer service and develop a greater understanding of customer needs.
2. **Technology.** The industry will invest more in technology. Legacy systems will be overhauled and technology will play a crucial role as insurers promote digital channels and self-service options.
3. **Corporate activity.** We predict further insurance mergers and acquisitions.
4. **Regulation.** Increased regulation and disclosure requirements are a huge challenge for the insurer.
5. **Business model change.** Insurers will have to embark on bold business model transformation to succeed. Redesigned target operating models, risk transformation and having the right talent to deliver change are crucial.

http://blog.abi.org.uk/2015/02/guest-blog-the-changing-insurance-landscape/

Mapping global risks

The Global Risks Landscape, a map of the most likely and impactful global risks puts forward that "interstate conflict" is a foremost concern. However, 2015 differs markedly from the past, with rising technological risks, which remind us that geopolitical tensions present themselves in a very different world from before. Information flows instantly around the globe and emerging technologies have boosted the influence of new players and new types of warfare.

Global Risks 2015 10th Edition, World Economic Forum

PHOTOS: CENARIO & LENE BENTE SKYTTHE, METROSELSKABET

Several new Metro stations are being constructed in Copenhagen right now.

Let's go underground

The Metro is an important part of the urban mass transport system in Copenhagen. The new extension 'Cityringen' is under construction and adds new routes. Several risk management challenges have to be dealt with on a daily basis in order to keep disruption to a minimum.

At an estimated cost of 2.95 billion EUR, connecting 17 new stations and measuring 15 km, the construction of Cityringen is the biggest infrastructure project in Copenhagen since the 17th century.

Connecting Copenhagen

Cityringen is a completely new metro line constructed on the same principles as the existing Copenhagen metro network. The Cityringen circle line will be an underground railway connecting the centre of Copenhagen to the surrounding inner city areas when it is completed in 2019. Cityringen will also be extended with new stations to the urban quarters Nordhavn and Sydhavn, totalling 24 new metro stations by 2023.

The Metro Company (Metroselskabet) plans to run two new lines on Cityringen – one circle route running round the entire track and one pendulum line, which will eventually run between Sydhavn and Nordhavn via the city centre. This will provide extra services for the additional passengers on the busiest part of the route. The finished lines will influence much of Copenhagen's current transport network: it is believed that the expanded metro will replace many bus services in the inner city. As with the existing Copenhagen Metro, the new lines will consist of driverless train units and operate with a gap of less than two minutes during peak hours and include an all-night service.

Plans for the Cityringen construction were approved by the Danish Parliament on 1 June 2007, and the initial contract was awarded in January 2011, with the main construction work commencing the following summer. The contract, which covers 15 km twin bored tunnels, 17 stations and 5 shaft structures, was awarded to Copenhagen Metro Team. The construction consortium consists of three Italian companies: Salini-Impregilo, Tecnimont and SELI, and in addition the building consortium has some 250 subcontractors and suppliers.

Historic construction site

If P&C Insurance is part of the group of insurers providing cover for the construction project (CAR Insurance) – public liability insurance and insuring physical damage due to the construction work and cover for the Tunnel Boring Machines (TBMs) used in the tunnelling project. The sheer number of contractors involved in the construction consortium highlights the complexity associated with large building projects like this.

Large infrastructure projects in dense urban areas create major challenges, such as a considerable number of changes to Copenhagen city's utility grid, which had to be implemented before the actual construction could start. Around the same time, archaeologists from the Museum of Copenhagen worked on what the museum terms "Northern Europe's largest archaeological excavation to date". The archaeologists discovered some remains of the ancient city gate and wall, as well as other finds that resulted in the early history of Copenhagen having to be rewritten.

The city is noted for its historic buildings, which had to be addressed in the planning and construction phase.

Even though it is a challenge to build a metro in a dense city, with the narrow streets of Copenhagen, only two existing buildings have had to be demolished to make room for the new metro line and its stations.

Challenging ground conditions

As well as the 17 stations, 5 shafts have been constructed that perform a number of functions including: bifurcations to the future Sydhavn and Nordhavn branches, an access ramp to the Control and Maintenance Centre, and crossovers to enable the metro to switch between tunnels. Three of the shafts are also used to launch and service the Tunnel Boring Machines (TBMs).

There are four TBMs in operation, powered by huge electric motors. The machines are approximately 110 metres long and weigh about 800 tons, and each tunnel boring machine is staffed by 10–15 people, including the 'pilots'. The machines bore on average 10–20 metres of tunnel per day and run day and night.

During the excavation, the machines will remove 3,100,000 tons of earth – roughly equivalent to 1.5 million m^3. The earth is being used to reclaim land from the sea in the harbour area, expanding the new urban quarter Nordhavn.

Copenhagen is a busy city that already suffers from traffic congestion. The logistic challenges arising from transporting the earth are at the forefront to minimise the impact on the traffic from the construction sites. As work in the evenings and nights has to be limited to reduce noise disturbance, the Metro management team has to plan the transportation to and from the construction sites in detail to avoid traffic jams.

Managing risks

According to Russell Saltmarsh (Seconded to Metroselskabet from engineering firm Arup, via COWI Arup Systra JV), responsible for the risk management of the

civil works at Metroselskabet, the project has several risks that need to be mitigated.

One of the biggest risks associated with any tunnel work in a dense urban environment is the impact on the existing buildings due to settlement caused by the tunnelling, especially considering that nearly half the tunnelling is in mixed soil conditions which can be very demanding and challenging for the contractor. This was a focus area early on in the project with an assessment being carried out on all buildings within 200m of the alignment to identify sensitive or historic buildings that might be at risk of damage.

Once the contractor was appointed it carried out a more detailed assessment of the buildings within a 50m corridor of the tunnel alignment. The assessment, based on predicted settlement contours from the tunnelling, follows an internationally accepted three-stage process.

For each stage of assessment, a progressively more detailed analysis is carried out until it can be demonstrated that the work will not cause damage to existing buildings, as defined in the contract; or the assessment is used to determine the mitigation measures required. In several locations, the tunnels are only a few metres below the foundations of existing buildings, or operational metro stations. To mitigate the possibility of excessive settlement of the ground causing damage to existing buildings, specialist techniques, such as compensation grouting, have to be applied under some buildings. A sleeved pipe is grouted into a predrilled hole beneath a foundation. Cement is injected at strategic locations, which results in a controlled heave of the overlying soil and structures, mitigating the effects of settlements when the tunnel machines passes through.

"The flood risk is the dominant natural hazard risk."

For sensitive buildings, 3D analysis of the ground and building structures has been carried out, and the results of this analysis are constantly compared with the results obtained from automatic monitoring systems installed on buildings to ensure that unexpected movements can be identified immediately.

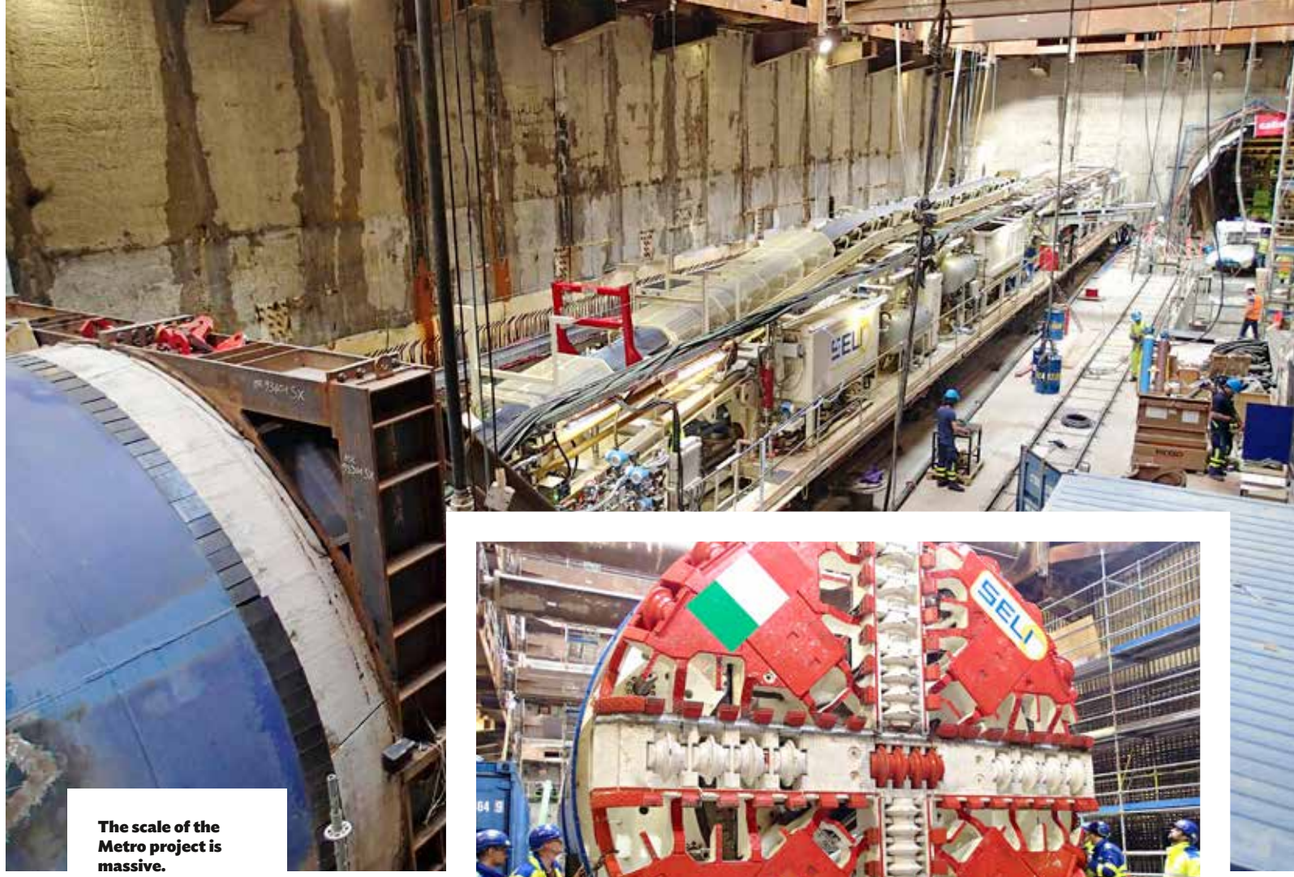
Natural hazard risks

Natural hazard events are other risks to consider when engaging in infrastructure construction, and "in the Copenhagen Metro construction the flood risk is the dominant natural hazard risk," says Morten Erfurt Hansen, CAR Underwriter at If P&C Insurance. Flooding events have been thoroughly analysed both for the construction phase and the operational phase. Consideration of the flood risk started during the preliminary design phase with hydraulic modelling of the entire city to model 'flood events' taking account of climate change. This allowed the engineers to set flood threshold levels for both the temporary and permanent conditions, which were included in the contract requirements. This, together with the contractors' own risk assessment and mitigation measures, has mitigated the flood risk as far as possible.

Safety standards

"The CAR insurance coverage is foremost there to cover the very rare and unexpected extreme events that can't be mitigated," says Guy Taylor, Project Director, Civil Work Management at Metroselskabet. Risk assessments and day-to-day risk mitigation are managed by the internal risk management organisation, following contractual requirements to comply with international best practice and standards.

At an estimated cost of 2.95 billion EUR, connecting 17 new stations and measuring 15 km, the construction of Cityringen is the biggest infrastructure project in Copenhagen since the 17th century.



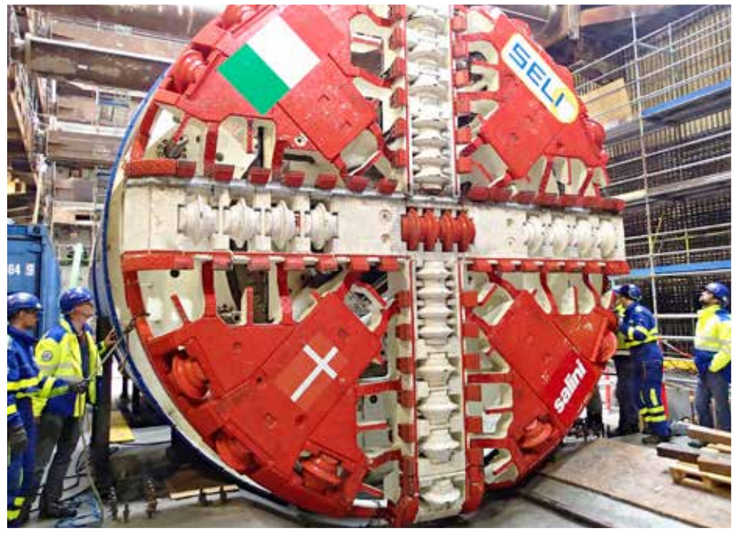
The scale of the Metro project is massive.

There are two codes of practice for risk management on tunnelling projects, one produced by the British Tunnelling Society (BTS) and one produced by the International Tunnelling Insurance Group (ITIG). "Both documents are very similar but we reference A Code of Practice for Risk Management of Tunnel Works (ITIG) in our contract," says Russell Saltmarsh.

The objective of the code is to promote and secure best practice for the minimisation and management of risk associated with the design and construction of tunnels, caverns, shafts and associated underground structures, including the renovation of existing underground structures. It sets out practices for the identification of risks, their allocation between the parties to the contract and the contract insurers; and the management and control of risks through the use of risk assessments and risk registers.

Each project team and contractor is a risk owner, and the management team at Metroselskabet will ensure that the key skills, sustainable working practice and risk management – as well as industry best practices – are promoted throughout the organisations. Internal risk management and risk registration are an inherent part through all stages of the project, from the Project Development Stage, through the Construction Stage to the final Operational Stage. The risk register and assessments are always carried forward to the next project stage. The risk registers are required to identify and clarify ownership of risks and details, clearly and concisely, and how the risks are to be allocated, controlled, mitigated and managed. "It's a highly complex job," says Russell, "with multiple risks and owners that need to be addressed on a daily basis." The project management of the new Cityringen will face many challenges during the construction phase, but given the extensive experience of the project team, there are well-developed risk management structures in place to tackle these challenges.

The main civil works construction phase is expected to be completed in the first half of 2017, followed by a testing phase, and when the new lines are taken into operation in 2019, they will be much welcomed by the citizens of Copenhagen.



The average travelling speed of the trains through the city will be 40 km/h, including stops at stations. It is estimated that by 2025, 130 million passengers will be travelling on the Copenhagen Metro system annually.

Infrastructure development is critical to support social progress and economic growth. Currently, large building projects in energy, transport, water supply and telecommunications are taking place throughout the Nordic Region, and If P&C Insurance and the insurance industry as a whole support these enormous investments as risk consultants and risk carriers. ■

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 PHOTO: MOSTPHOTOS

Insurance for Delay in Start-up

The project has a material loss. A delay cannot be avoided. What can be done?

A company or community starts a project with the goal to produce services or products. The goal includes the idea of growth, producing a profit or satisfying needs. When the project has been successful, it is put to use within a planned time schedule. In the case that the project faces a loss that causes it to be delayed and the operational phase to move, the principal suffers a loss before making a profit.

The principal can cover himself/herself against such a loss in several ways. Principals can be careful when choosing contractors and suppliers to realize his/her project. He/she can also require all parties of the project to ensure a high level of risk management during the project phases. Despite all the safety measures taken to secure the project, the principal can suffer physical loss, causing a delay in profit income. The principal can take out insurance against physical losses during the project phase to ensure his/her profit starts to flow as planned in the specification stage of the project. This insurance is called Delay in Start-up.

Delay in Start-up (DSU) also goes by other names such as Delayed Start-up, Delayed Earnings, Delayed Opening of Business and Advanced Loss of Profits. They all mean more or less the same thing. The differences between them are limited to the definition of Profit or Earnings and the definition of the principal's self-retention, meaning waiting period or deductible period.

DELAY IN START-UP insurance can only be taken out by a company that has a financial interest in the loss of profit in case the project confronts a physical indemnifiable loss during the realization. Contractual penalties or liquidated damages are not covered by Delay in Start-up insurance. Contractors and suppliers are normally in contracts that have such penalties if they do not deliver the agreed part of the project on time. The principal or owner is the party in the project who will suffer the loss of profit after the delay of the project works. Large-scale projects regularly have investors behind the principal. These investors normally also set some requirements for insurance coverage. Investors need to be added as beneficiaries to the Delay in Start-up indemnity when the project makes a big loss. This is to secure invested capital to be reinvested in rebuilding or in the case that the assumption parameters of the whole project have been changed to consider its sensibility.

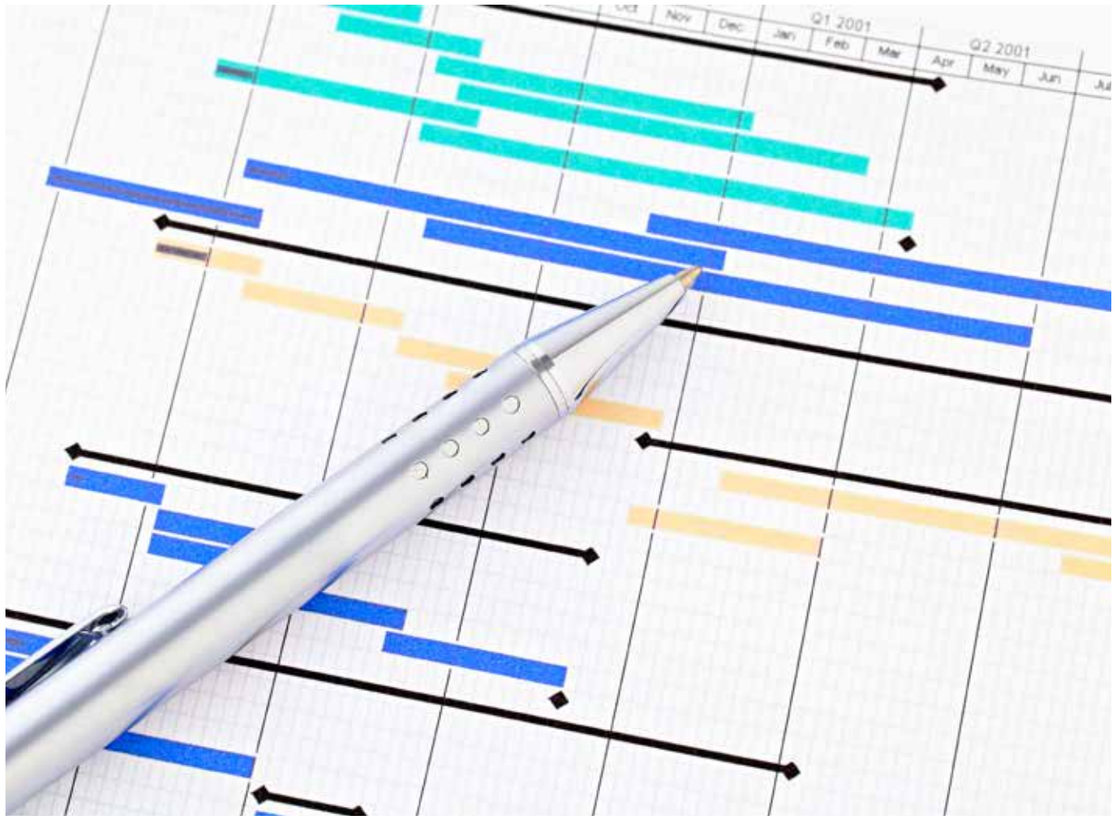
"The principal can take out insurance against physical losses during the project phase."

The object of Delay in Start-up insurance is to indemnify the principal for the actual loss sustained due to a delay in the completion of the insured works. One condition of the indemnification is that all the project works are also insured and that the direct physical loss is covered according to the insurance conditions of the works cover. Contractors' All Risks, Erection All Risks or Comprehensive Project Insurance has to be taken out by the principal as the indemnity of Delay in Start-up insurance is based on the underlying project works coverage. The indemnity follows the normal loss of profit calculation principals where the basis of the sum insured and the maximum indemnity is, at the same time, the gross profit.

THE INSURANCE PERIOD of Delay in Start-Up coincides with the project works and testing period and terminates with the commencement of the operational phase. The projects normally have agreed ways to define when the project works are finished and the operational phase has started, especially in industrial projects determined by, for example, a Provisional Acceptance Certificate of Completion. Delay in Start-up insurance does not include the maintenance or defect liability period, due to the operational phase already having normal business interruption or loss of profit insurance cover applying to losses during normal operation. The principal can extend the Delay in Start-up coverage to include losses during the transportation of the supplies to the construction and erection site. In some cases, the coverage can be extended further to the manufacturing of certain equipment or machinery on the supplier's assembly or manufacturing sites.

THE INDEMNITY PERIOD commences on the day the handing over would have taken place had the loss not occurred and it ends on the day that commercial operation starts and at the latest at the end of the maximum period of indemnity agreed with the principal and insurer beforehand. This means that the first day of possible indemnity is the day of the operational phase after completion of the works according to the time schedule before the loss occurred.

The principal has to agree the length of the indemnity period with the insurer at the stage when these parties are agreeing on the insurance cover. The indemnity period is normally set to the time needed to rebuild the project in a worst case scenario. The indemnity period is expressed in months after the originally planned



time schedule for the works. The Delay in the Start-up indemnity period is shorter than the repair period after the loss has occurred. This happens due to the expediting of the works after the loss and before the date of the planned commercial operation.

In case the physical loss has delayed the commercial start day, the principal still has a deductible period as his/her own retention per loss. Deductible Period is also known as waiting period or time excess. The Deductible Period is agreed in the negotiations between the principal and the insurer. The Deductible Period is expressed in days after the commercial operations have started without loss. During all lost gross profit, it is counted as self-retention of the insured party. The length of the Deductible Period depends on the risk severity of the commercial operation.

THE AMOUNT OF indemnity depends on the calculation of the sum insured for the DSU. The normal calculation of the sum insured adds the fixed costs to the net profit, meaning gross profit. Another way of calculating it, which gives the same result, is to deduct it from the variable costs of the turnover. The sum insured also has to reflect the gross profit value of the indemnity period. In some rear cases, the sum insured as well as the fixed daily value can be calculated when the starting operation has the nature to produce steady and constant output, without seasonal variations.

DSU indemnity and loss settlement are based on the principal's actual loss sustained not on the sum insured. However, the loss settlement should be based on the same kind of calculations as those on which the sum insured has been specified.

ACTIVE RISK MANAGEMENT measures are required from the principal who is insured. These risk management actions focus on the project works part to prevent possible losses. Insurers also demand other obligations from the principal to fulfil DSU insurance conditions. The level of obligations depends on how big the project is and the severity of the exposure of the principal's occupancy cast on the insurer's balance sheet. Insurers can demand that the principal provide information on a regular basis regarding actual work progress including different parts of the project, updating the scheduled date of hand-over and information on material damages that may contribute to a delay.

Insurers can also perform site visits to inspect the level of risk management and progress of the site. Insurers very often involve external experts or consultant to follow up what happens on the insured site and the progress.

The principal or owner of a project has a considerable number of issues to solve when he/she starts to prepare to invest in a project. A further reason is that he/she will benefit greatly while in contact with his/her insurer in order to secure the success of the financial result of the project. ■

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PHOTOS: SHUTTERSTOCK

Insurance solutions for investing in Africa

Billion-euro investments in Africa by major Nordic firms demand a great deal from insurance companies. "If is able to offer customers investing in Africa a much wider and higher-quality partner network than those of its Nordic competitors," promises Mia Himberg, Head of International Partner Network.

Africa currently has the world's fastest-growing economies.

Africa's 54 countries have a total of about 600 insurance companies and 40 reinsurance companies.

If offers a wide range of insurance solutions in support of customers operating in Africa.

"The pan-African Globus was selected as our partner in 2012, because it has the largest network in Africa, and its member companies represent the biggest local actors on the markets," notes Mia Himberg.

SEVEN OF THE world's ten fastest-growing economies are located in Sub-Saharan Africa.

These seven countries are Congo, Mozambique, Ethiopia, Nigeria, Mali, Tanzania and Ghana.

A key factor accelerating economic growth in Africa is the demand for raw materials in other parts of the world. China has noticed that, by building airports and roads in Africa, it gains access to African oil, zinc and aluminium reserves.

There is also a need for harbours, electricity, telecommunications and clean water. Infrastructure investments have also raised interest in Africa amongst Nordic firms.

About 80 Swedish, 250 Danish, 66 Finnish and 94 Norwegian firms now have operations on the African continent, and many have established a subsidiary there.

EXPANDING OPERATIONS INTO new countries poses new types of risks and surprises from the administrative perspective and, above all, involves a decision on who will be responsible for safeguarding the company's balance sheet. Cultural differences and language problems often have a major impact on the way risks and insurance matters are managed.

In Africa, the insurance sector is heavily regulated. The aim is to protect African insurance companies from international competition.

Add in legislation-related differences and local insurance rules and practices, and the need for reliable and local expertise in insurance matters becomes all too apparent.

Mia Himberg believes that customers should present their business plans at an early stage, so that a network of services can be built based on the customers' needs.

IF'S PARTNER, THE pan-African Globus, headquartered in Doula, Cameroon, includes member companies from 37 African countries. The group is constantly growing and is expected to have presence in 44 countries in a not too distant future.

> *"The pan-African Globus has the largest network in Africa."*

Globus has set strict requirements for member companies. As members, Globus tries to select insurance companies that are among the three largest in their home countries. Large size and strong expertise help to ensure things run smoothly.

"The team of If's Network unit is tasked with ensuring that the network functions properly. Our focus is on operating practices, level of service and international development trends within the insurance sector. It is also our task to keep the network up to date and monitor our partners' quality of operations on a regular basis."

"By co-operating with one large operator, we save time and money for our customers," says Mia Himberg.

The risk management directors of If's corporate customers have been delighted with how well Globus works.

"THROUGH GLOBUS, WE also receive rapid information on the insurance markets in various African countries and on any changes in their regulations," says Regional Manager Heini Heideman, who is responsible for co-operation with English-speaking African countries.

"Globus also has its own reinsurance company, whose responsibilities are guaranteed by major international reinsurers. This increases the reliability of the insurance solutions that we provide locally."

Although almost every country has its own insurance regulations, the harmonisation of legislation is moving forward.

As a rule, an unregistered foreign insurance company is not allowed to insure against local risks. Harmonisation efforts can also be seen in the way in which the 'cash before cover' principle has become more common. This refers to the insurance cover being valid only when the premiums have been paid.

Regional Manager Heini Heideman and her colleagues establish and manage relations with network partners and develop processes that guarantee or ensure the management of local insurances linked to Global Programmes.

"The worldwide programme of a single Nordic country can include more than 50 local policies. If's customers have more than 2,000 local policies in over a hundred countries," Heini Heideman elaborates.

Demand for international travel insurance is also rising rapidly. This is usually the first insurance policy to be taken out at the launch phase of new projects. As operations expand, this type of cover is supplemented by project, liability and property insurances.

WITHOUT IF'S PARIS office and the contribution of the French Annabelle Fiori, it is unlikely that If would be offering a service concept of the kind it now provides to customers operating in Africa.

"French is the official language in almost half of all African countries, and the harmonisation of insurance legislation has advanced furthest in the member countries of the CIMA (Conférence Interafricaine des Marchés d'Assurances), which are former French colonies," says Annabelle Fiori of If's Paris office.

Annabelle specialises in international business and liability insurance underwriting, due to which she is highly familiar with the standards required by If's customers. These are key qualities in the management of everyday insurance issues.

"I am in almost daily contact with the Globus hub."

As a Regional Manager, Annabelle Fiori is responsible for Africa in general and for the French-speaking countries of Africa in particular.

"The more familiar we are with the local insurance markets and legislation, the easier it is for us to sell international services to our customers," say both Heini Heideman and Annabelle Fiori.

In the case of more complex loss events, If makes use of international loss adjusters. Claims Director Mike Freeman of If's London office is closely connected with the best inspection and loss adjustment companies in the business. "In the case of major losses, we know who to contact," say Heini Heideman and Annabelle Fiori.

THE AFRICAN STATES need sustainable industries, regional integration, closing of the infrastructure gap and greening of the economy.

What has become a great competitive advantage for Africa is the fact that they do not have any legacy systems. They can jump over several stages in development on various areas and save money when no huge maintenance and rebuilding of old systems are needed. Many traditionally sold services are directly created as mobile service or an internet application.

Secondly it seems that funders for foreign investments are increasingly demanding proof of sustainability. Sustainability and responsible enterprising shall be closely connected to profitability.

The third major issue is infrastructure. Largest reason for poverty is lacking infrastructure. Africa has a weaker competitive position due the poor access to energy. A strong focus is put on Electricity production and distribution. Sustainable energy access is prerequisite for all development, at the moment a bottle neck. 600 million people are without electricity and the situation becomes even more severe due to the doubling of the population by 2040. This offers huge possibilities for Nordic industry. ■

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 PHOTOS: A-LEHDET, MOSTPHOTOS

Contracts are the cornerstone of any business transaction. A good contract ensures delivery of the agreed quality at the agreed price and time.

Managing risks in contracts

COMPANIES THAT DO not focus on contract management often fail to meet expectations with regard to the quality of a product or service and the handling of risks. Not only does a good contract ensure delivery of the agreed quality at the agreed price and at the agreed time, but also when it comes to liability cases, the company's legal position will often be favourable if it has drafted and managed its contracts well.

As the volume and complexity of the business increases, so does the risk exposure, and it is a fact that the number of claims and contract disputes over the last years has increased. Even highly professional companies with a clear dedication to quality cannot fully avoid the risk of becoming involved in disputes with their contract partners. When the dispute is a fact, the relationship between the parties often turns sour, and the losses can be significant.

If's clients operate in a wide range of fields, from manufacturing of goods to design of buildings, construction, energy production, fish farming, providing consultancy services, etc. When faced with a liability claim or a lawsuit, the companies can turn to their liability insurance carrier, and the insurance company and the insured party together will start the work of evaluating the claim.

Each reported case has its own dynamics. The claim could be of a technical nature, which is often the case in product liability claims, or it could be of a strict legal nature. No matter the context, in order to provide good legal advice, as attorneys at If we must obtain in-depth knowledge of the insured party's area of expertise and the legal framework within which the insured party operates. An important part of the legal assessment involves reviewing any contract that may exist between the claimant and our insured party.

Some of our cases have involved comprehensive contracts in which all items are laid out in minute detail. On the other hand, we often see agreements that are closed in a single sentence in an e-mail. In one particular case the only written evidence of the parties' agreement was information found on a paper napkin: signatures scribbled down in a hotel lobby over a drink in the early hours of the morning. Even though these different agreements were all legally binding, the contract situations create different challenges for the parties themselves and for the lawyers trying to resolve disputes that may arise from them.

MANY COMPANIES HAVE high awareness of how they should manage contract risk, and they have spent a substantial amount of time drafting written policies to ensure quality in contract handling as well as compliance. As lawyers, we encourage the use of such checklists, which should include items of contract drafting and reviewing, how to handle the negotiating phase, as well as documentation and storage.

However, the problem is not normally the quality of the policy itself but that checklists are not always implemented throughout the organization and that individual mistakes are made. With schedules fully booked, the company policies and their requirements may be overlooked or not given enough priority on a busy workday. Making sure that all levels of the organization are committed to improving contract management is a good way to start.

We would also add some simple suggestions here.

1. Contract drafting

- Read your clients' terms of delivery/contract wording thoroughly, even though they may be standard wording. Your counterpart's contract could carve out some of the benefits you intended for yourself in the transaction. Keep an active approach and seek to clarify such differences, do not rely solely on your own standard terms of delivery to 'outdo' those of your counterpart.
- Choice of law and venue is an important, but often overlooked, part of the contract. These issues are often dealt with in the late phases of the negotiations when most other conditions are agreed upon. The parties, content that the major issues are in place, sometimes fail to analyse the legal and practical consequences of choosing a foreign law or venue. When accepting a certain choice of law, you must know how this impacts the interpretation of the contract, and in some venues certain contract clauses may be unenforceable. Before accepting a venue, you should consider whether there are practicalities that need to be sorted out and what cost you would incur if you had to establish a legal defence in a foreign venue.
- Review your contracts from time to time. Your terms of delivery or other contracts may not always be up to date with your current needs. Should there be a change in your business strategy, your contracts should be harmonized. If you take over new business, make sure the contract structure fits the existing one of the company or take advantage of the 'best practice' from each company.
- Before contract reviews, involve stakeholders that are or may be responsible for contracts within their department. Get them involved so they understand the key legal and business risk factors associated with each party and contract type and identify the areas of focus.
- When changes are made to a contract, the contract obligations should be aligned with the terms and conditions of the company's insurance policies. If the insurance company has accepted a risk provided that a certain condition is in place, you should ensure that the new agreement does not create problems in relation to insurance coverage.

In one case, one of our insured parties, a small architect firm, faced a liability claim of several million euros. When the claim's handler asked the insured party to confirm that it had used a certain agreed document that was a condition of full coverage in its liability policy, the architect did not know if this was in place.

This uncertainty caused a great deal of tension within the architect's company before it could eventually establish that the agreed document had indeed been included in its contract and that it had full insurance coverage.

2. Negotiations

- Are the negotiations handled in the best way possible?

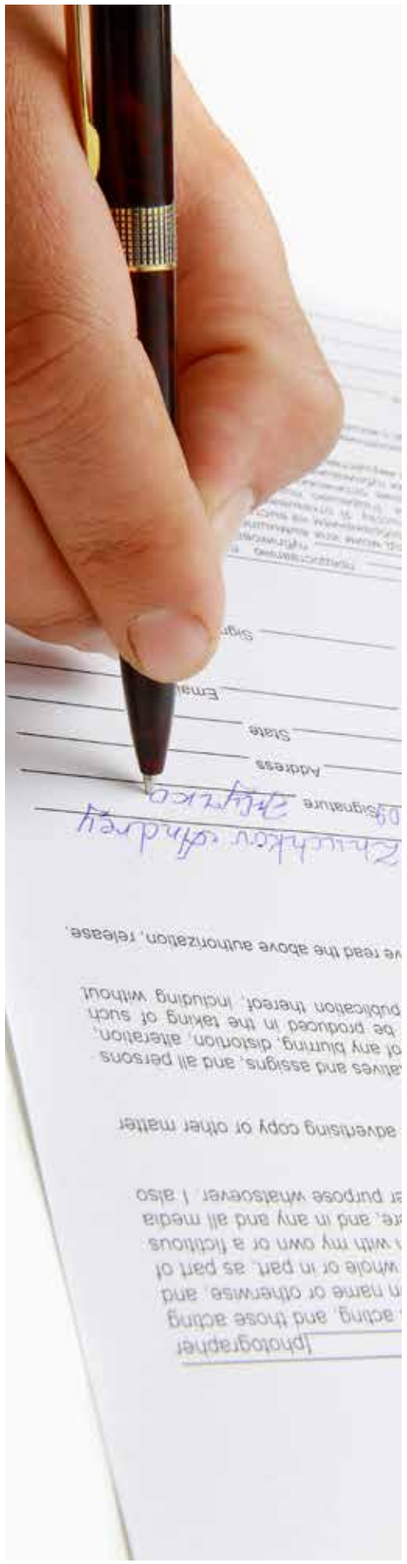
In one of our cases, the take-home lesson for our client was that it was overpowered in the negotiation phase, leaving it little or no bargaining power.

The company was represented by a bargaining team consisting of technical people who were very skilful at what they did but had little experience or interest in negotiation. Its contract partner, on the other hand, was a sales person who was very business smart and had managed to persuade his counterpart to accept what turned out to be highly unfavourable terms and conditions.

The technical company's management later acknowledged an improvement area when it came to negotiation. The next member of staff it would hire would not be yet another person with technical expertise but a person who could strengthen its client team with negotiation skills and build future customer relations.

3. Documentation and contract storage

- We see many cases that are lost due to lack of documentation. Make sure the contract itself is stored safely and do not forget to keep also any e-mails and other written communication that could help clarify the parties' intentions. In professional indemnity cases, in particular, though this could also be true for other cases, the courts expect the professional to ensure that any advice or agreement is documented in writing. Provided that the client has a reasonable argument for his/her disagreement with his/her counterpart's interpretation, the professional will be carrying the burden of proof. This means that, e.g., a lawyer, an accountant or a real estate broker who relies solely on trust and 'gentlemen's agreements' with his/her client risks losing any disagreement that could spring out of the case, whether due to misunderstandings or the client suddenly seeming to 'remember' details of a conversation in a different way. We have represented many insured parties that in hindsight must acknowledge that the litigation in which they became involved could have been avoided by one short e-mail summarizing what the parties had agreed upon.



Conclusions

CLIENTS WHO HAVE an in-depth understanding of their own contracts and have thoroughly analysed what could go wrong have a better chance of avoiding misunderstandings and unwanted incidents. Clear wording will allocate responsibility for fulfilment of contractual duties.

Several cases we have dealt with have involved previous business partners who had not been clear enough on what they expected from each other in the project, causing disagreement and lack of trust. Their underperformance under the contract eventually led to financial loss for parties down the contract chain. Even though the liability claim was a heavy burden for our insured parties, for some of them the loss of reputation and the sense of personal loss caused by the business break-up were almost as troubling as the litigation itself.

IF A CONTRACT is drafted with clear wording on the scope of work or delivery and the parties' duties within the contract, while at the same time implementing a limitation of liability suitable to the line of business operated within, the chances of misunderstandings and receiving a claim are less likely. However, if a claim is filed, clear expectations in a contract could facilitate managing the claim and assessing the litigation risk, which again could ease potential settlement discussions. Resolving the dispute through settlement is often a good solution for the parties, as this could minimize friction and help the parties resume a business relationship afterwards.

One lesson is vital: the value of good contracts is realized only after they have been signed. ■

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Obamacare – the new U.S. health reform

Highlights of the U.S. health reform – new requirements for individuals and companies

The Patient Protection and Affordable Care Act (ACA), often called Obamacare, was signed into law by Barack Obama in year 2010. The purpose of the Act was to ensure that all Americans have access to affordable, quality health care while at the same time reducing health care costs via the government healthcare programs (Medicare/Mediaid).

Four years ago the uninsured population in the U.S. was almost 50 million, or approximately 15% of the whole population. The ACA is expected to facilitate coverage for additional 30 million persons. High-level areas of potential impact from this reform on the medical claims are accelerated medical costs and higher waiting time for treatments. On the other side, on a long term basis one can expect a healthier workforce which will have positive influence on claims duration, severity and successful return to work.

THE ACA REGULATES the obligations for an individual and members of their household to have health insurance, called the Individual Mandate. The demands on the insurance coverage contains for example compulsory preventative coverage, guarantee for renewal, no exclusion for pre-existing conditions for individual members on a plan and restrictions to annual or lifetime limits. If the individual doesn't have the mandatory insurance coverage they may have to pay a penalty, within the individual´s federal income tax return.

THE ACA ALSO requires large employers with an average of 50 or more full-time employees, to provide a minimum essential coverage (MEC) to their employees. A non U.S. employer can be a large employer based on the number of full time employees providing services within the U.S. A failure by an applicable large employer to offer compliant health coverage may subject them to penalties under certain conditions.

"Each individual expatriate employment contract should be analyzed in order to plan how to avoid tax implications and company fines."

The effective date of the Individual mandate was Jan 1, 2014 and for the Employer mandate Jan 1, 2015.

THE U.S. GOVERNMENT has not yet given clear instructions how to apply the ACA requirements for employees expatriated to and from the U.S. It is for example unclear if all expatriate plans guaranteed by foreign governments will be regarded as MEC.

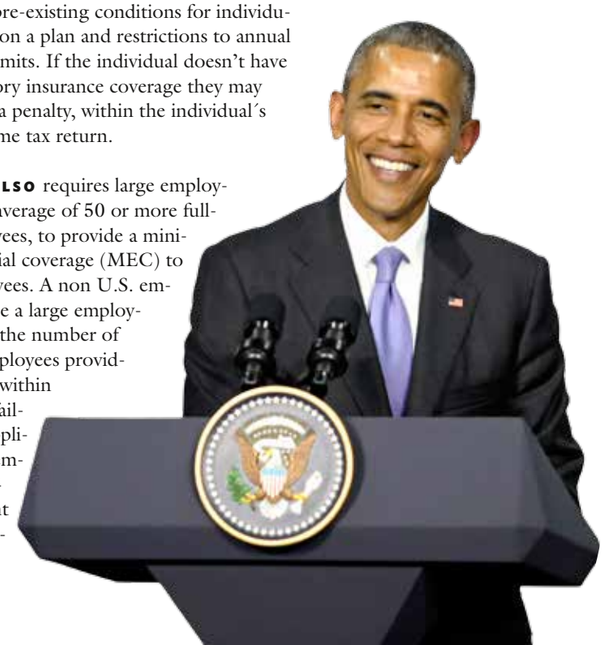
The Individual mandate likely applies to expatriates who are employed by a U.S. company and are sent on assignment to work abroad. There are exclusions from this rule, for example depending on time-limits.

The ACA regulations also includes foreign nationals employed by non-U.S. companies sent to work in the U.S, however there are exemptions that may be applicable. For example no penalty seems to be applicable if the assignment period is less than three months.

The individual penalties for failing to fulfill the ACA requirements may create additional costs for the employer if the assignment policy requires the employer to reimburse the expatriate for the tax penalties.

It is likely that an ACA compliant insurance will become one criteria for the Immigration department to give visa in the future.

If is closely following the ACA implementation and practices. We recommend that expatriate policyholders contact their local HR experts in the U.S. Each individual expatriate employment contract should be analyzed in order to plan how to avoid tax implications and company fines. ■



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Power plants in a changing world

Thermal power-generating facilities are aging fast. It has been estimated that nearly half of the production capacity operating in 2030 must be built in the years 2010–2030.

At the same time, the role of thermal power as a provider of base load is changing because of the increasing focus on intermittent renewable energy sources. The integration of wind and solar power systems has introduced additional variations into the system. Alongside fluctuating demand, there is an increasing amount of fluctuating supply with priority feed-in. All this results in increasing variability of supply and thus the need for reserve, balance and back-up power increases.

As a result, aging power plants are required to adapt to flexible operation in response to changes in the demand for electrical power. To extend the life and manage the maintenance of plants, advanced preventive maintenance technologies are becoming more important. Equipment manufacturers have been developing new methods in non-destructive inspection, life assessment technology and rationalization technology for scheduled inspections of main equipment used in power generation to strengthen preventive maintenance and increase the efficiency of maintenance.

Using these methods, it is possible to obtain vast amounts of information about the condition of the machinery. At the same time, it takes a great deal of expertise to interpret these data. Recommendations are not always unambiguous and they are often presented without an order of importance. As a result, the main recommendations in these reports may be overlooked without proper interpretation of the data and results.

Preparing for breakdown

Operators of power plants and, especially, turbines are faced with the requirement to maintain aging equipment efficiently. The traditionally conservative approach to maintenance scheduling is being replaced by reliability- and condition-based criteria in a growing number of power plants.

With aging equipment, the number of machinery breakdowns is bound to increase. Theoretically, the rate of machinery breakdowns compared with the operating time can be demonstrated with a bathtub curve.

In If's experience, the theory behind the bathtub curve reflects the reality quite well. The challenge for the power plant owners and operators is to measure, analyse and make the correct assumptions about the condition of their machinery and decide both the schedule and the scope of the maintenance. The most likely risk of breakdown must be predicted as accurately as possible in advance including a profile of the duration of breakdowns. The timeline for machinery breakdowns is presented in Figure 1. With this information it is possible to develop maintenance investment strategies based on risk assessment, not purely on OEM recommendations.

"Advanced preventive maintenance technologies are becoming more important."

Together with intelligent maintenance procedures, it is important to have a well-thought-out back-up plan and to consider its risks. In many cases, after the initial breakdown the back-up plan also fails. Old power plants have been downgraded to be operated as peak load and back-up plants. The maintenance strategy for these plants is usually based on corrective action, and when needed in emergency situations the start-up can be anything but easy.

Due to the shape of the bathtub curve, the maintenance operations should be executed with a reduced maintenance interval during the 'Infant mortality' and 'wear out' period. After the 'Infant mortality' period the maintenance interval can be lengthened if machinery breakdown analyses support this.

Breakdowns during the 'Infant mortality' period are usually related to problems during the machinery design, construction, commissioning and start-up period and are hard to predict and prevent. The machinery breakdowns that can be evaded with good condition monitoring are related to wear and tear, and the 'constant failures' and 'wear out failures' periods in Figure 2. If the operation philosophy or nominal values differ from those originally designed, the wear and tear failures are bound to increase. The machinery will be aging technically more rapidly than expected. Wear out failures will keep growing despite investments in maintenance. With different operating philosophies, the Replacement Asset Value (RAV) of machinery will grow too large to bear sooner than designed.

The RAV tells you how well your expenditure on capital equipment is being looked after. At 20 %, the RAV maintenance cost has increased so much that it is possible to buy a new machine every five years.

At high RAV, machinery is very expensive to maintain and reflects the following possibilities:

- aggressive operation conditions
- poor operating and maintenance practices
- substandard product quality

Maintenance strategies

Different maintenance strategies can usually be described with the following terms:

- periodic

Figure 1. Machinery breakdown timeline

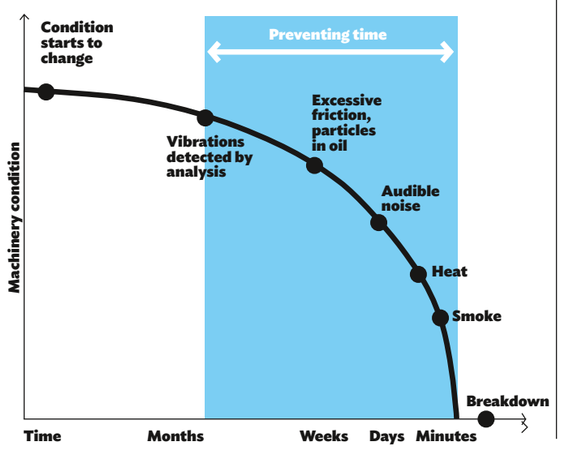
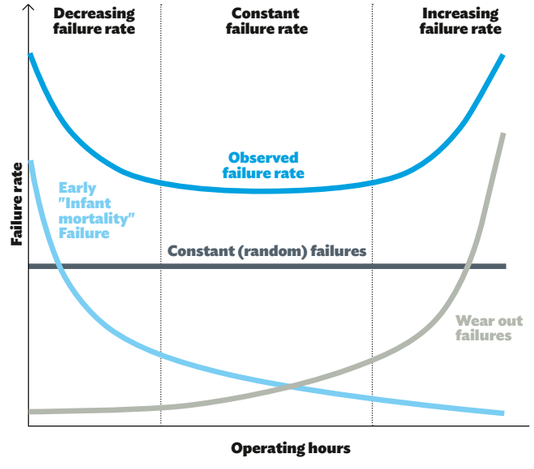


Figure 2. Bathtub curve of machinery breakdown



- condition based
- corrective action based

A periodic maintenance strategy is usually defined in the OEM instructions. It is based on the total operating hours, machinery age, number of start-ups and shut-downs and sometimes also has limitations for stand-still time. This is the basis for further maintenance strategy development if necessary.

Condition based maintenance is defined by the machinery operator experts or external experts (can also be OEM) based on different measurements and analysis made during the machinery operating hours and revision findings. Condition based maintenance is the most efficient maintenance strategy, but it is also the most time- and resource-consuming.

Corrective action based maintenance is a strategy in which machinery is repaired or changed after breakdown. This has a huge negative impact on plant reliability.

As stated before, excessive maintenance is expensive. It is also important to realize that during maintenance works the machine is very vulnerable. There can be numerous incidents during revisions and the revision crew can also make mistakes.

With a condition-based maintenance strategy, the total maintenance costs are kept as low as reasonably possible. The maintenance strategies should start with the OEM recommendations, but after knowledge of the machinery accumulates, the development of maintenance investment strategies can be based on risk assessment and revision findings not purely on OEM recommendations. However, the recommended maintenance intervals should not be significantly exceeded.

After a trip of the machine or suspected possible machinery breakdown, it is always extremely important to inspect the machinery, operating conditions and possible reasons for alarm or trip and conduct necessary works before trying to start up the machine again.

Finally, it is very important to understand that revision of machinery does not make them new.

Revision procurement

Larger power plant operators usually have their own revision crews that circulate their power plants performing maintenance and turbine revisions. Power plant operators with fewer turbines usually procure the revision works from an OEM, other turbine manufacturers or independent companies. In this case, however, the time between revisions can be close to ten years. During this time, the lessons from the previous revision may be forgotten or personnel may have changed.

In both cases the project can benefit from hiring an external expert as the owner's engineer. An outsider's view and experiences will provide different opinions and can benchmark the quality of works to other power companies.

An owner's engineer represents the project owner during the design, development and construction phase to confirm that the work is executed well and within legal standards. Though it may not seem intuitive, hiring an owner's engineer can actually reduce a project's overall costs. The expense of the owner's engineer is often counterbalanced by savings obtained through tight control of the different project sectors. This third party is not directly involved in the design and construction project, instead it acts as an advocate for the owner to apply due diligence. Typically, an entire engineering company, rather than an individual engineer, provides this service. The owner's engineers can include a team of people from different engineering specialties.

After the revision, the condition of the machinery should be estimated with suitable measurements. These measurements will provide the base level to which the turbine will be compared in the future. Comparing these figures to the ones recorded after the turbine commissioning will give an estimation of the remaining technical lifetime of a turbine. The confirmed condition of the turbine during the revision will be the basis for adjusting the turbine maintenance and revision schedule and operations.

Soon after the revision is finished, all the information, documents, measuring and testing data should be collected and stored. All participants should give their estimations of the project with improvement considerations for the next revision.

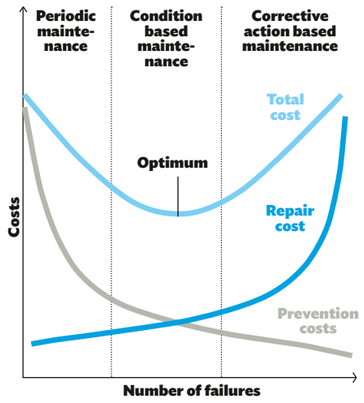
Testing of the safety equipment

In most of the cases, the proper functioning of the safety equipment has been the dividing factor between unscheduled downtime and catastrophe. Thus, maintaining, improving and testing the safety features is extremely important. Testing should be done as a routine in the plant. The execution of these tests should be properly documented together with possible problems detected. Working with an OEM helps to develop a test procedure and the necessary documentation.

When possible, testing procedures as well as start-up and shut-down procedures should be observed from the control room as well as in the field. The role of the field operators is to ensure that all functions are working as expected without any extraordinary findings.

For turbines, trip throttle valves, turbine trip valves, governor valves and steam extraction, check valves should be exercised weekly to reduce the probability of stuck valves. Replacing mechanical governors and mechanical overspeed protection devices with electronic governors and electronic overspeed protection systems is highly recommended. All turbine-related testing should be done according to well-documented procedures together with operators qualified for the procedures. Testing of the safety equipment poses a high risk to the production without well-thought-out and meticulously executed testing procedures. ■

Figure 3. Maintenance strategies



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to a new country, novel challenges can arise: difficult conditions, political uncertainty, or health risks.

For example, recent events and other economic and political upheaval in Russia are being continuously monitored. In Nuotto's opinion, this means that unexpected geopolitical issues will pose new kinds of risks over the next few years. Due to the situation in Russia, it has become noticeably more challenging to persuade some employees to go there on secondments.

"However, as a rule, our employees have been happy to work all over the world. Training employees to work in a new country of secondment is part of good human resources management. The significance of this is emphasised when the location is in a risk area and conditions are difficult."

PREPARING FOR CHANGE is a prerequisite of good HR operations. The prediction of personal, health and safety risks is a key part of the HR strategy of today's businesses. In addition, Nuotto regards the prediction of health risks as a key issue in corporate HR.

"It is particularly important to anticipate any risks – to prepare, train and inform. We ensure that employees' insurance cover, health issues and travel safety are in order. By training our employees, we aim to make sure that they are as well prepared as possible. Good preparation is part of taking care of our employees," Nuotto emphasises.

Outotec's customers are sometimes located in more remote parts of countries where, for example, the standard of occupational healthcare services can leave something to be desired. Last year's Ebola outbreak was a risk which Outotec also had to prepare for. In addition, employees themselves tend to be most concerned about possible health risks. However, even the best strategy is not watertight and unexpected incidents can occur.

"In the last few years, we have noticed that situations can change fairly quickly – an environment that is stable one minute can become challenging the next," Nuotto points out.

However, good preparation has been highly beneficial for Outotec and minor robberies are the worst situations faced by its employees in recent times. Nuotto nevertheless still regards continuous development as an area in need of attention. Safety issues should be borne in mind by all companies and should be run through regularly so that employees can learn how to act going forward.

"Safety issues should be borne in mind by all companies and should be run through regularly so that employees can learn how to act going forward."

Kirsi Nuotto
Senior Vice President, Human Capital

NATURAL DISASTERS ARE also a cause of much deliberation in HR and preparations for these are as careful as possible. According to Nuotto, employees have been flown home due to incidents such as earthquakes, but demonstrations and other safety risks are also treated with equal concern.

Outotec is well aware of where its employees are working at any given time. Employees receive targeted information on events in their working areas, through a text message service provided by SOS. In addition to everyday issues, such as flight cancellations, the service provides information on safety issues.

"Through this service, our employees receive information on their mobile phones if, for example, they need to avoid certain high-risk areas," Nuotto explains.

Although the company's process works well, the help of local authorities and other people is needed in more serious situations. Nuotto, who was also working in HR at the time of the Boxing Day tsunami, emphasises the human aspect of her work. Feedback from Outotec's own employees and their families on work done in successful anticipation of problems provides Nuotto with her greatest successes.

"I often compare this to a doctor's work – you must remember to treat people with respect. In HR management, you get to see all sides of life. You need to work as professional as possible even in unpleasant situations, although that is not always easy."

IN NUOTTO'S OPINION, securing skills in both the short and long term is an area in need of development in Finnish companies. At Outotec, this is supported by activities such as mentoring among employees, which is seen as an important bridge between generations and cultures. A long-standing expert who has acted as a mentor for dozens of younger colleagues is extremely valuable to a company.

"In a rapidly changing world, the dissemination of knowledge and skills is very important. In addition to good leadership, the sharing of information between employees is of great importance. If you have no experience, you have no knowledge, either."

Even if the culture of the country in which you are working is different from your own, a harmonious corporate culture pulls employees together.

"Shared values, a common mission and meaningful work are the factors that bring people together," Nuotto continues.

Attracting and retaining good experts always forms part of the main HR agenda. Good human resources management aims to make employees commit to their work and to long careers. Varied tasks offered by the company and factors such as job rotation opportunities, which take employees from one department or continent to another, assist in this process.

"The development of an inspiring and engaging corporate culture is therefore an important focus area for everyone," Nuotto concludes. ■

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CLIENT: KONGSBERG TECHNOLOGY PARK PHOTOS: KONSBERG TECHNOLOGY PARK

Kongsberg Technology Park:

Preparing for the flood

The tech companies in Kongsberg are preparing for the 200 year flood they hope will never happen.

On Thursday 5th July 2007, the water level in the river Numedalslågen in Norway was five metres higher than normal for the time of year.

The river flows right through the town of Kongsberg and was just decimetres away from spilling over the levees in front of Kongsberg Technology Park, where some 40 different businesses are located employing more than 6,000 people.

Nearly one thousand cubic metres of water were roaring past every second. That's the equivalent of four hundred fully-loaded, 24-metre-long lorries every minute.

Two of Kongsberg's Defence & Aerospace (KDA) buildings, located right next to the river, were at most risk. The buildings are used for the manufacture and storage of missiles. The basement was already flooded.

On the Friday, the waters of the river started to ebb and a day or so later the levels were more or less back to normal.

"After this incident, we were left in no doubt that major investments was essential to prevent the future risk of flooding," says Frode Skistad, Director of Kongsberg Technology Park, the company that owns most of the properties in the industrial estate and manages practically all the others.

"When property is at risk of flooding there are large amounts of money at stake. Apart from the damage it causes to buildings and other structures, flooding also disrupts production which subsequently affects a company's ability to fulfil contracts and meet deadlines."

A permanent solution

The danger of the river Numedalslågen overflowing its banks is not the only threat.

In the 1970s, a bay along the west bank of the river was filled with blasted rocks. The new ground is five metres above the river Numedalslågen, which was considered a more than adequate safety margin.

Everything was fine for about 15 years, after which the water began to seep up through the rocks and underneath the KDA building, part of which is built on the landfill.

When the water level is high, there is intense pressure from below.

A wall of steel

The flooding in 2007 made the responsible parties realise that there was a real risk of the water quite simply lifting the entire KDA building and causing irreparable damage.

"It was absolutely clear that major investments were required to address the problem once and for all," Frode Skistad remarks.

The Norwegian authorities have introduced regulations stipulating that for new property to be built alongside the river, for which land has been set aside, it must be protected to withstand a 200-year flood, a flood wave that is seven metres higher than normal.

A solution that is brand new for the Nordic countries has now been developed by Kongsberg. This is how it works:

- Large rocks and stones will be removed from the riverbed alongside the Technology Park and the bottom will be raised a few metres using gravel and sand. A small barrier of blasted rock demarcates the bottom elevation out towards the river.
- A 300-metre long steel wall will be inserted all the way down to the bedrock ten metres away from the bank.
- A centimetre-thick sand and bentonite mat will be embedded in the sand and gravel to cover the entire area between the river bank and the steel wall. The mat expands up to fifteen times its size when wet, creating a totally watertight barrier.
- A 1.5-metre-high concrete wall will be erected along the riverbank to provide protection from fierce flooding. Should the situation become even more extreme, it is possible to raise the height of the wall by about two metres using steel plates.

Important monitoring

The new wall will protect the built-up area should flooding occur.

But it will also prevent rainwater from flowing into the river Numedalslågen.

And persistent, intense rainfall is typical when flooding occurs.

"It must be possible to channel the rainwater away, otherwise, we will have created a swimming pool," Frode Skistad explains.

"That's why we are constructing two sizeable pumping stations that we can turn on during river overflow and torrential rainfall."

Kongsberg Technology Park has invested more than 60 million Norwegian kroner in this undertaking.

Preparations have been under way for a long time and considerable focus has been placed on the effects of the construction on buildings on the opposite side of the river and on the environment. All the filling material is to be washed to ensure it has no adverse impact on the freshwater mussels and other species in the river.

The construction work began in January this year and completion is expected by the autumn.

Naturally, there are risks involved.

"What worries me the most is if there is a major flooding later on this year," says Sigmar Karason, the Project Manager.

"Should that happen, all the work we have done will be washed away and we'll have to start all over again. We also have to be mindful when pounding the steel wall into the riverbed, as this causes the ground to shake and many of the businesses in the Technology Park are high-tech companies whose activities are sensitive to this type of disturbance."

Frode Skistad adds that it is important to inspect and monitor the quality of construction at every stage.

"This project requires extreme accuracy and thoroughness," he says.

"It would not be easy to find a leak in the barrier."

Anders Rørvik Ellingbø, who is Head of Risk Management at If Industrial, Norway is impressed by the project.

"There is a real risk of Kongsberg being hit by devastating flooding," he says.

"From what we can gather, climate change will cause the water levels in the river Numedalslågen to rise even more in the future. The Technology Park is acting in a responsible, long-term way by investing in safety and taking steps to reduce future damage. It is setting an example for others who have business operations in vulnerable areas," he says. ■

Improvised flood barrier in Kongsberg during flooding.

Ulf Bäckman

River Numedalslågen
The river Numedalslågen is 352 km long. Its source is in the Hardangervidda mountains and it flows out into the Larvik Fjord. There is recurring flooding along the river. The flood of 1927 was the highest recorded in Kongsberg. There have also been extremely high water levels in 1987, 2000, 2004 and 2007.

Kongsberg Gruppen
Kongsberg Gruppen is an international technology group that supplies high-technology systems and solutions to customers in the offshore oil and gas industry, the merchant marine and defence and aerospace industries. Kongsberg has some 7,500 employees in more than 25 countries. The company's head office is in Kongsberg. Kongsberg Gruppen is listed on the stock exchange and the Norwegian government holds a majority ownership interest in the business.

Kongsberg Technology Park
Kongsberg Technology Park is based in the municipal districts of Kongsberg and Horten in Norway. The business park covers an area of just over 500 hectares and comprises 40 different high-tech businesses, including companies in the oil and energy sector, aircraft engine industry and defence production. Kongsberg Technology Park is owned by Kongsberg Gruppen.

PHOTOS: MOSTPHOTOS, ALL OVER PRESS

Image in crisis

The image of a company is weighed in times of crisis. Image is valuable capital for businesses, and it must be protected, developed and managed.

Do you know the black swan of the company's riskscape?

Good image is a significant, yet easily vulnerable competitive advantage. Most business executives think about image crises, yet they are uncertain about how to prepare for them.

Pekka Aula, professor at the University of Helsinki, is an expert in organizational and online communication and particularly in image and image risks of companies. Aula also has a practical approach to a company's image crises.

"An image crisis is not inherently good or bad for a company. Everything depends on how the crisis is managed and what advance preparations have been put in place for it," Aula explains.

THE INITIAL PERIOD of a crisis is critical.

"Companies must have a plan for image crises and, when necessary, the plan must be implemented quickly and without compromises. The management of the company must be able to prioritize and devote itself fully to crisis management, if necessary."

In the worst case, an image crisis may harm a company's business seriously.

"Negative impact on the image can be seen as decreased sales profit, fall in turnover, deteriorated ability to obtain new capital or attract potential employees."

Building the image of a company requires long-term quality management. Every business executive should pose at least three questions to their organizations. Do we know what the image of our company is? Do we take our image seriously? Can we protect our company's image in a crisis?

IMAGE WARS ARE often waged in public.

Pekka Aula gets excited when thinking of today's complex communication environment, and particularly the significance of social media in image crises.

Publicity is the core of image risk in our times. A company's image is formed as a result of dialogue between reality and images.

The growth of the social media's significance is well characterized in the growing number of social media users: this year, social media is estimated to have 2 billion active users. The forecast for 2018 is 2.5 billion.

"Publicity is in flames. Social media is a playground for new opinion builders, where ad hoc interest groups rise and fall within no time. The requirements for corporate communication have changed, and it is difficult to predict the reactions of online opinion builders," Aula summarizes.

Looking from the perspective of corporate communication, social media has its bright side – as well as a dark one.

"Social media opinion builders like to convey a positive message of a company's actions, which, according to them, are good. The expertise and online skills of the opinion builders can be utilized to support the company's product development, for example. On the other hand, opinion builders are sensitive and will waste no time in reacting, accomplishing image crises when they feel the company is not acting as expected or is doing something wrong."

In the worst case, online image builders can take stronger action: we all have heard of boycotts, activism and cyberterrorism, denial of service attacks and viruses in recent news.

"Online opinion builders are, naturally, not always right when they criticize companies, but this does not necessarily matter in the image war waged in public. Dialogue takes place between reality and images. Companies must actively participate in the dialogue, while accepting the reality that factual arguments may not be heard the way they should. Actions and their credibility are decisive."

VARIOUS EXTREME PHENOMENA are always a risk for the image of a company. Extremes can come in many varieties: acts of nature, terrorism or humanitarian catastrophes may decisively affect the operations of a company.

"An image crisis is not inherently good or bad for a company. Everything depends on how the crisis is managed and what advance preparations have been put in place for it."

Pekka Aula, Professor, University of Helsinki

Pekka Aula once again emphasizes that the impact on a company's image in case of an extreme phenomenon, depends on how the crisis is managed.

"For image, it is often essential whether the cause of the crisis is internal to the company or external to it. For example, disturbed airline traffic caused by a volcano eruption is a different crisis than a crisis arising from the company's own actions or management abuse, for example."

Parallel to traditional extremes, Aula has developed the idea of social extremes, which are typical to our times and the communication environment characterized by social media.

Aula refers to a social extreme phenomenon as the "black swan of a company's riskscape." Black swan is a term coined by researcher Nassim Nicholas Taleb, which he uses to refer to an extremely rare event with dramatic consequences and which is practically impossible to predict.

"A social extreme phenomenon is always a significant image risk for a company. It's most essential feature is unpredictability, although it could be easy to explain afterwards." ■

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American Red Cross & drunken tweet

Late one Tuesday a tweet appeared on the Twitter account of the American Red Cross: "Ryan found two more 4 bottle packs of Dogfish Head's Midas Touch beer.... when we drink we do it right #gettnslizzerd".

It was soon uncovered that the tweet was accidentally posted by an employee working as a social media specialist at the Red Cross, and it was originally meant for her private account. The employee later apologized in a tweet telling that it was due to her inability of using a social media dashboard.

The original tweet stayed up for an hour or so before their social media director took it down and sent a well-put response:

"We have deleted the rogue tweet but rest assured the Red Cross is sober and we've confiscated the keys."

The American Red Cross also addressed the issue on their blog, thanking their supporters for understanding. Dogfish Head, the brewery mentioned in the tweet, also took active part in the case. They sent out a tweet with the same #gettnslizzerd hashtag asking their fans to donate to the Red Cross.

The original tweet, however, was retweeted, copied and screen captured several times around the web. Nevertheless, the instant response posted by Red Cross and the dash of humour used in it turned the potential catastrophe to the victory of the organization.

In addition, it could be claimed that the relationships the humanitarian aid organization had been building previously as well as it's rather undamaged reputation strongly contributed to the recovery.

thefundraisingjournal.com/Archive/1102/redcross.html
mashable.com/2011/02/16/red-cross-tweet/

 PHOTOS: MOSTPHOTOS

Catastrophic case of MOL Comfort

Vessels, cargo and risk. What can we learn from the past?

Altogether, ten vessels over 16,000 GT sank in 2013. Of these ten casualties, the sinking of container vessel MOL Comfort was the biggest loss (Lloyd's List Intelligence Casualty Statistics). Immediately after reporting the loss, a large number of different theories regarding the circumstances leading to this loss cropped up – faulty design, faulty material used in the structures of the vessel, falsely declared cargo in containers, falsely declared container weights, etc. In any case, this incident is of major importance to all parties in the maritime business, including cargo interests and cargo insurers, and thus it is worth going through this case and its aftermath.

LET US START with some background information regarding the vessel. MV MOL Comfort (MOL – Mitsui O.S.K. Lines, Ltd) was built by Mitsubishi Heavy Industries (MHI) in Nagasaki, Japan. The vessel was laid down on the 23rd of August 2007, launched on the 8th of March 2008 and completed on the 14th of July 2008. In other words, she was quite young at the time of the incident.

Overall, the length of the vessel was 316 meters, and the container capacity of the ship was 8 110 TEU (twenty-foot equivalent units) of which 3 494 TEU in the holds. Although MOL Comfort was far from the triple-E vessels commissioned by Maersk and the other latest mega-container vessels such as MSC Oscar with a container capacity exceeding 19 000 TEU, MOL Comfort was still a significant-sized vessel representing so-called post-Panamax vessels, as she was not able to transit through the Panama Canal due to her size.

MOL Comfort was the first container vessel classified by ClassNK (Nippon Kaiji Kyokai) to use ultra-high-strength steel with a yield strength of 470 MPa in her hull structure and was one of a fleet of seven similar vessels operated by MOL. Since 2011, she was owned by Ural Container Carriers SA and chartered by MOL. In total, MHI built 11 vessels with a similar design to that of MOL Comfort.

"As if all this hardship was not enough, a fire broke out."

AT THE TIME of the loss, MOL Comfort was on her way from Singapore to Jeddah, Saudi Arabia. On the 17th of June 2013, she suffered a crack on midship some 200 nautical miles off the coast of Yemen in severe weather conditions. Eventually, the vessel split into two halves. Luckily, the whole crew managed to leave the vessel and there were no casualties.

Both halves of the vessel stayed afloat and much of the cargo remained unharmed. On the 24th of June, four ocean-going tugboats arrived and started the rescue operations of the bow section. On the 26th of June, the stern section was reported to have water ingress and the next day the stern sank. As a consequence, some 1,700 containers were later floating near the site. At this point, the bow section was being towed and there was still hope of rescuing some of the cargo.

On the 2nd of July, the adverse weather conditions continued and the bow section broke free. Somehow, the towing line was successfully reattached the following day. As if all this hardship was not enough, a fire broke out in the bow section. Despite the best efforts of Indian Coast Guard, the combination of rough weather and firefighting proved too much to cope with and by the 10th of July, the majority of the approximately 2 400 containers were destroyed by fire. The following night, the bow section sank. The sinking of MOL Comfort cost the insurers somewhere between 300 and 400 million dollars. The hull and machinery of the vessel were insured for 66 million dollars.

ALL TYPES OF vessels operate with some amount of bending stresses. This is because of the difference between the downward load of the cargo weight and the upward push of the buoyancy of the water. Provided that the cargo weight is correctly declared, the downward load of the cargo is more even – or rather, correct – along the vessel. At the same time, the upward push due to the buoyancy of the water is greater on the mid-part of the vessel's structure. Usually, ships cope ➔

with this stress even in harsh weather conditions and vessels of the age of MOL Comfort should not have cracks in their structures and split into two halves.

In the report of the investigative panel led by ClassNK, the conclusion was that the lateral load might have exceeded the hull girder's strength at the time MOL Comfort split into two halves. The investigation has not been easy to conduct as all physical evidence lies deep down at the bottom of the sea. There are many factors that cannot be ascertained – like yield stress, the actual and declared weight of the containers and the sea conditions.

The panel investigated over 17 container vessels with a capacity between 6,000 and 8,000 TEU in order to acquire more information about the vessels' capabilities to cope with similar stress to that of MOL Comfort. The panel was able to find significant difference between MOL Comfort and other vessels in the hull girder's strength against bending moment. In addition to this, the panel stated that the lower need for ballast increases the risks for post-Panamax vessels.

Danish Naval Architect Ingrid Marie Vincent Andersen, PhD, found interesting pieces of information while doing research for her PhD thesis. Andersen states that MOL Comfort as well as her sister vessels were not engineered to cope with the additional loads placed on the vessel. According to PhD Andersen, due to the hydro-elastic effects, the hull girder vibration can double the stress response amid ships in some cases. Research conducted by engineers White and Wang (published by Lloyd's Register) supports these findings. There were tremendous spikes in the vertical bending moment, as wave strokes on the bow resonated through the vessel's structures. The traditionally used linear ship motion codes have not been up to this kind of stress.

A higher wave loading is also connected to containerships having a bigger cargo space forward. In practice, this means greater bow flare, which was the case with MOL Comfort and is the case with the ever bigger 14 000 TEU and greater vessels in operation. The high-strength steel used in MOL Comfort and her sister vessels also results in slightly lower natural frequency and, in combination with the greater bow flare, could make the vessel more vulnerable to whipping vibration (gCaptain, 11 November 2014).

AS A CONSEQUENCE of the MOL Comfort incident, MOL immediately took operational precautions to reduce the stress on the sister ships. Even though the sister vessels fully comply with the standards required by ClassNK, MOL conducted upgrade works in order to strengthen the hulls. Some bottom buckling was found on the vessels. MOL has sued MHI, seeking approximately 130 million dollars, for alleged negligence and defects in the vessel. The lawsuit also includes cargo and insurance interests.

Was this a completely unforeseen event? Judging from the results of the different researches and investigations, in the end, no, it was not. This was a big surprise to everyone, but with a little hindsight this perhaps should not have been. There have even been some very critical comments on whether ClassNK should have accepted this kind of structures in the first place. The International Association of Classification Societies (IACS) is working for new container vessel strength standards, aiming to have these rules in force on the 1st of July 2016. This would mean that all large container vessels ordered after mid-2016 are structurally stronger than their predecessors. There are also considerations for additional checks for the vessels already in operation as their capacities even now exceed 19 000 TEU and there are talks about 22 000 TEU vessels.

"For shipyards, classification societies, vessel owners and charterers, the significance of the upcoming rules is crystal clear."

FOR SHIPYARDS, CLASSIFICATION societies, vessel owners and charterers, the significance of the upcoming rules is crystal clear. There should actually be a case for the cargo as well. The ever bigger container vessels can carry huge amounts of goods and values for one single cargo interest and an incident like MOL Comfort could create a real disaster for the sale of seasonal goods, critical items for projects as well as any other cargo. Let us hope that the new IACS standards make a difference. All in all, the MOL Comfort incident served the purpose of reminding us all that huge losses can come from directions nobody anticipates and very large claims do occur once in a while no matter what. ■

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The concept of General Average

The concept of General Average is not necessarily known outside maritime professionals and people working with marine insurance.

As a matter of fact, General Average has been around a long time as a rule of the sea for merchants, well before the invention of modern marine insurance.

IN A GENERAL Average act, the Master of the ship sacrifices property or incurs expenditure in order to prevent loss of the adventure. The act must fulfil the following conditions:

1. It must be deliberate. Accidental losses cannot be admitted as General Average even though the final outcome would be the same.
2. It must be prudent and reasonable. The act must be something that a reasonable person would do by sacrificing his/her own property to avert a greater loss in the given circumstances.
3. The act – hence sacrifice or expenditure – must be exceptional.

And all three of these steps must have been taken and fulfilled in order to save a common maritime adventure involving two or more parties, mainly the parties to the ship and the cargo, from being totally lost. A typical example would be to sacrifice the majority of the cargo by throwing it overboard in order to save the vessel and remaining cargo from sinking and towing the vessel (which is an expenditure) to a port of refuge.

IN GENERAL AVERAGE, each benefitting party – the saved vessel and cargo in the above example – must contribute in proportion to its interests to make good the General Average loss and expenses. The amount that is to be made good is called the General Average fund. The General Average process starts at the place or port of refuge where the adventure terminates by the ship owner declaring General Average prior to releasing the cargo and appointing an Average Adjuster. The Average Adjuster evaluates the General Average fund and contributory values per interest in the marine adventure and drafts the General Average adjustment. The amount to be made good is apportioned between the contributing interests in relation to each interest's contributory value.

Cargo interests are required to sign an Average Bond and pay their share of the General Average contribution in order to have the cargo released. Alternatively, the cargo owner or consignee – in addition to signing the bond – gives an Average Guarantee ensuring the payment of the General Average contribution. This is usually done by the cargo owner's cargo insurance company. The alternative, if there is no cargo insurance, would be a cash deposit, bank guarantee or similar arrangement.

INSTITUTE CARGO CLAUSES (A), (B) and (C) do cover General Average costs provided that the General Average is due to an insured peril. Now, in the case of MOL Comfort, General Average was not declared as the adventure was not saved. The potential contribution from the saved property was all lost. However, imagine a 19 000 TEU vessel in distress somewhere in the middle of the Atlantic Ocean; the sacrifices and expenditure in that kind of nightmarish situation could be horrendous and the General Average procedures could take years. So, even if it is thought that no cargo insurance is needed for the goods, which is a misconception, bear in mind the possibility of a General Average: the contribution, arranging the General Average guarantee and participating in the administrative proceedings. Our Claims Experts and the International Transport Law Team at If P&C are experienced in participating in and handling major marine casualties and General Average proceedings in a professional manner on behalf of our clients. ■

Integrated Safety and Health Management

A New Book Published

The new book published by Springer International is an insight into health and safety management at work, and the science and practice involved in its development. It is written by a number of experts working in academic research, as government officials, and practitioners in insurance and industry.

Seppo Väyrynen, Kari Häkkinen, Toivo Niskanen (Editors): Integrated Occupational Safety and Health Management Solutions and Industrial Cases

Springer International Publishing Switzerland 2015, 306 pages

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The numerous case studies presented in the 15 chapters of the book include examples of a variety of industries – e.g. construction, chemical and steel industries, logistics in production plants as well as seaports and road transports, and industrial maintenance. The recent developments in health and safety management are discussed from many perspectives. Besides the more traditional accident source statistics and root cause analysis, also leisure time accidents of employees and well-being at work are covered.

The evolution of the understanding regarding the role of management in the health and safety process is visible in a number of ways. The beginning is by the compliance with laws and regulations, then continuing to systematic safety management supported by international standards, further to leadership and coaching approaches, finally including the EHS culture, employee engagement, attitude and innovation in health and safety towards the zero-accident goal. The international trend is towards holistic health and safety management, where corporate sustainability is fully integrated with all aspects of corporate management. As a consequence of this development, international companies are required to report globally their overall environmental, social and economic performance information. Thus health and safety performance is increasingly a matter of competitive edge. Success and failure in health and safety can even be determinants of the shareholder value and company reputation in long term.

The challenges in health and safety are particularly at focus in construction industry. The accident and risk patterns are characterized by a high risk of fatal and serious accidents, wide use of subcontractors and workforce with varying competences and cultures, as well as worksites changing continuously along with the projects proceeding towards their completion. The HSEQ Training Park is a recent development by the Finnish construction industry. The park is a large demonstration site with several training spots. During the the training sessions, the construction employees and trainees receive practical illustrations of the risks at construction work and the most effective ways to counteract them. The chapter 10 of the book presents an overview of the training park, thereby providing answers to the questions presented in the Chapter 3, regarding the accident sources in the construction industry.

Three health and safety risk management experts of the Industrial team in If P&C Insurance Ltd have contributed to the authoring of the book, especially to its Part I dealing with safety management and leadership. Kari Häkkinen has worked as one of the three editors of the book, and additionally he has been one of the authors in individual chapters. Salla Lind-Kohvakka has authored an article regarding accidents and their prevention in industrial maintenance. Ville Niemelä has co-authored with Kari Häkkinen in writing the article of the accident sources and prevention in construction industry.

The book is available as an e-book and as a traditional hard-cover book format.

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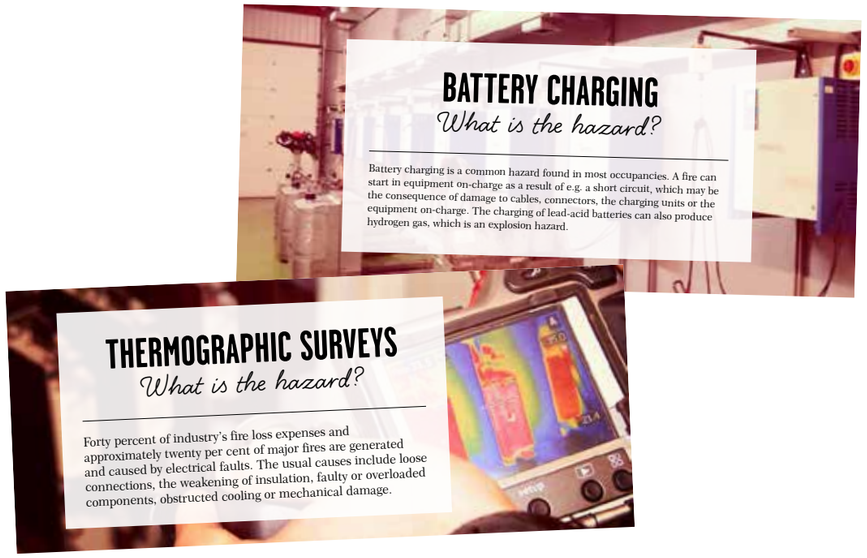

If's Hazard Info Sheets help you to reduce your property risks

WHEN CONDUCTING RISK surveys, If's Risk Engineers have identified many property and Business Interruption risks that are common to a number of industries all over the world. Mostly the ways to reduce these risks are similarly common and independent of the industry in question. Therefore, If Industrial has started producing and publishing Hazard Info Sheets. These sheets provide information and advice about the mentioned risks.

"The first three sheets have now been published."

The main target group for these sheets is obviously risk management and loss prevention employees of our clients. They include the Corporate Risk Managers as well as the site personnel. They work in various industries and countries, and they need to get the core information relating to these property risks in a format that is easy to understand and apply.

Therefore, the sheets are rather compact, which makes them quick and easy to adopt. There are normally only two headings: "What is the hazard?" and "How to reduce the risk". The risk reduction part gives practical guidance about ways to reduce the risk of property damage or business interruption, or both.

The Hazard Info Sheets do naturally not replace any national regulations, but are intended to complement these with additional, very practical guidance. Nor do they replace the surveys conducted by If's Risk Engineers, but they provide an extra tool to be used in connection of the visits and the Loss Prevention Reports following them.

The first three sheets have now been published on our website. They deal with Thermographic surveys, Hydraulic oils and Battery charging. You find them on our website if-insurance.com under Risk Management / Property and Business Interruption Risks.

Anna Maria Vähäkuopus

"In the Copenhagen Metro construction the flood risk is the dominant natural hazard risk."