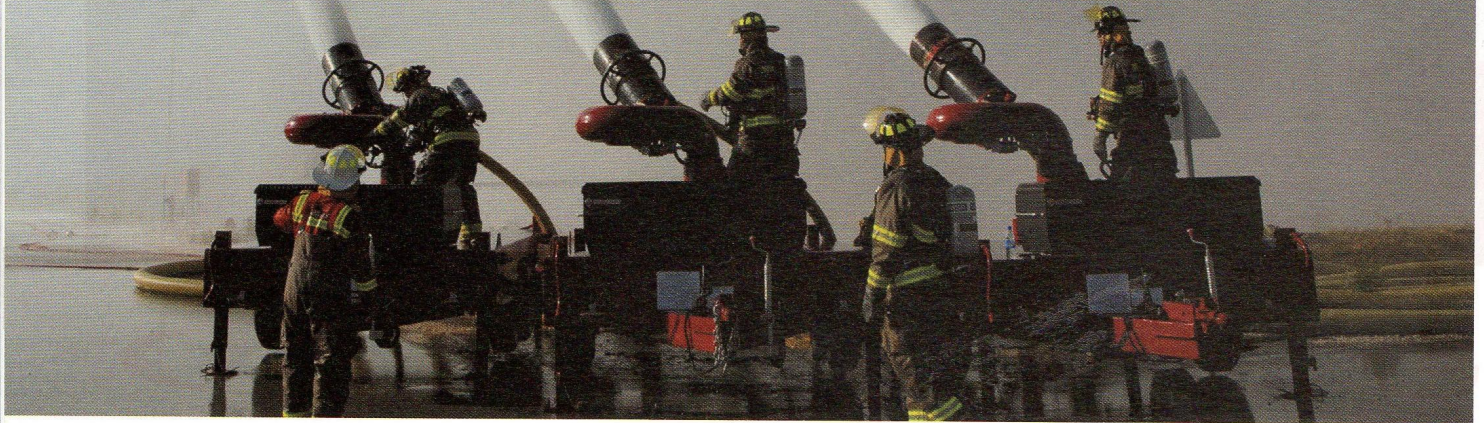




Mutual aid

An international research project has been launched by Kappetijn Safety Specialists and JOIFF looking into different mutual-aid models for large-scale incidents in high-risk industries.



Large petrochemical industries face large challenges where safety is concerned. They have to abide by strict governmental regulations (Seveso/COMAH) and must provide specialist fire fighting capabilities to overcome large-scale fire scenarios. It is unusual for a single company to be able to offer all the necessary materials, personnel, education and training to comply with all these requirements, which is why various collaborations have been springing up internationally under the collective term of 'mutual aid'.

The experiences and lessons gained from collective fire fighting and emergency services collaborations are the subject of an international research project being undertaken by Kappetijn Safety Specialists in partnership with JOIFF.

History has many examples of large industrial fires and incidents that demonstrate the need for cooperation in preparation for and response to large-scale accidents such as the 2005 giant fire on the tank terminal premises of Buncefield, near London; the fire at the chemical company Chemiepack in the Dutch harbour of Moerdijk in 2011; and even more recently the fire in the tank terminal of Andhra Pradesh.

Invariably, the lessons learned from such major incidents

are that individual companies are not equipped with the necessary materials to control such fire scenarios and the governmental fire brigades are similarly unprepared in knowledge and capacity. Joining forces is necessary therefore to ensure the fire safety at chemical companies and tank terminals and guarantee a quick deployment of the necessary fire fighting materials during calamities.

More and more large industrial clusters are discovering the power of mutual aid, with initiatives now existing even on a national scale – CIMA in Houston and SMC in Sweden are good examples. However, in many other places organisations are still searching for possible cooperative solutions, a process that this research aims to facilitate. A vast amount of knowledge and skill exists in the world of industrial fire fighting, but it needs first to be unlocked to benefit the collective. This is what this investigation aims to do with the support of JOIFF.

Mutual aid and PPP

Collective industrial fire brigades come in different shapes and sizes as regards organisation and operational method. The type of collaboration that best fits a cluster of high-risk companies depends on a number of factors, including the local situation, the risk profile of the companies, the credible and normative scenarios, the financial framework and national rules and regulations. But it also depends on the ambitions of the local leadership: what do they want to organise – and thus manage – collectively? There is no good or bad system, but here is a quick sketch of the various models.

Industrial mutual aid consists of multiple companies in an industrial cluster cooperating to maintain a robust fire fighting organisation with specialist vehicles, equipment and materials for fire end spill suppression.

The model appears in different variations. Some companies may invest in a collective organisation with an independent governing body, while others may supply financial means while the actual provision of the specialist services are

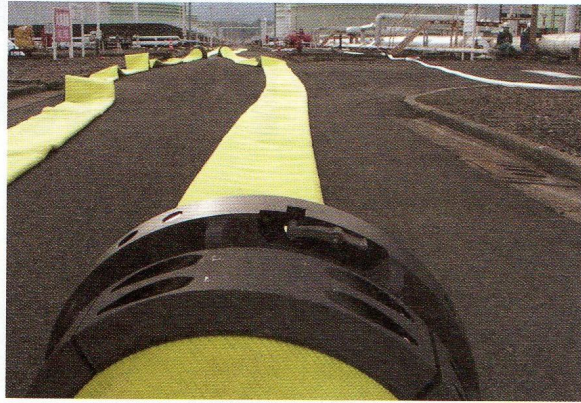
Three Williams Battler monitors flowing at 30,000 litres per minute each during a training exercise at Ceyhan Terminal in Turkey.

Right: LNG training facility at Texas A&M University's Emergency Service Training Institute.





Shibushi Oil Refinery, Kagoshima Prefecture, Japan. Each prefecture in Japan has a mutual-aid scheme in place to guarantee incident attendance within four hours.



performed by one of the member companies. A third option is outsourcing the suppression services entirely to a private supplier of fire fighting services.

There is a fourth model and one that is perhaps not yet as valued as it should be: public-private partnership (PPP). Under PPP, industry and government cooperate in safeguarding an effective collective corporate or joint fire fighting organisation. In this way, both corporate and governmental interests are met. A PPP for industrial safety is sometimes regarded with suspicion by critics, who point out that governmental and industrial interests are too far apart to constructively cooperate in one collective firefighting organization. Practice, however, is refuting that argument. Successful PPP fire fighting organisations are working in many different places, proving that government and business can easily and successfully cooperate provided there is a framework of agreements with a clear division of responsibilities and tasks.

Examples from the Netherlands

As a small and densely populated country with various seaports and a number of large industrial clusters, the Netherlands has acquired its fair share of experience with collective corporate fire fighting organisations based on mutual aid and PPP. Governmental bodies and businesses both acknowledge the collective need for robust industrial fire fighting organisations to ensure public safety and industrial continuity and have therefore joined forces in a number of industry-rich regions.

The Port of Rotterdam's industrial area has since 1998 been home to the 'Joint Fire Brigade', which comprises the governmental fire brigade of Rotterdam-Rijnmond Safety Authority and over 60 high-risk member companies.

While a segment of these high-risk companies – which include refineries – used to have an industrial fire brigade, many others were not as well prepared where fire safety was concerned. Similarly, Rotterdam's municipal fire brigade was equally unprepared for large-scale industrial fires. When the government outlined its strict requirements based on Seveso/COMAH regulations around response and credible fire scenarios, it soon became apparent that to provide a number of individual fire fighting teams would be a tremendous waste of money in the case of a relatively small cluster of high-risk companies. Consequently the local authority and businesses joined forces in a communal arrangement that provided the foundation for a joint fire fighting corps. This corps is responsible for incident control both on-site at the member companies and in the public domain. In addition to offering basic local and industrial fire services, a separate arrangement is in place with a pool of specialist equipment for



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KEYNOTE SPEAKERS:

Vanessa L Allen Sutherland -
Chairperson & Member of U.S.
Chemical Safety Board



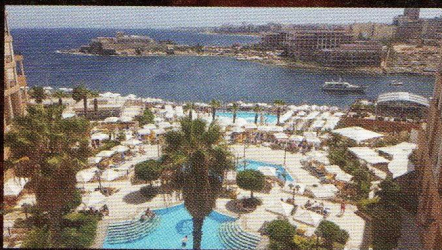
Mu Shanjun -
Vice President of SINOPEC Research
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Zhang Guangwen -
Senior Engineer of SINOPEC Research
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large-scale tank fire fighting.

A more recent PPP fire fighting organisation has been active in the port since 2013, specifically in the industrial area of Moerdijk and involving approximately 20 Seveso companies. It came into being following an incident in 2011, when a sizeable fire raged in Chemiepack's facility. The company did not have a corporate fire brigade and the municipal fire brigade proved unprepared and unequipped for such an incident. The public-private partnership model here consists of a financial contribution from the high-risk companies in the area to a special unit of the municipal fire brigade, which takes care of any similar incidents.

Then there is the Port of Amsterdam' mutual aid system (AMAS), a PPP model aimed at large-scale tank fire fighting with heavy pumps and extinguishing materials. Companies facilitate the budget for two complete sets of equipment consisting of pumps, monitors, hoses and connectors for tank fire fighting. The operational deployment is carried out by the municipal fire fighting departments of Amsterdam-Amstelland and Kennemerland, which both border the port. Amsterdam-Schiphol Airport and its fuel supplier AFS are also partners in this arrangement.

Examples of Dutch mutual aid without a local authority component also exist. The province of Limburg is home to the industrial complex of Sitech (850 hectares with production facilities for bulk and fine chemistry), where an active collective corporate fire brigade serves multiple companies, including Lanxess, OCI and Sabic. Examples of fire provision outsourcing can also be found at Chemie Park Delfzijl in the north of the Netherlands and the Kijfhoek railyard. Both locations fall under the Seveso guideline and are required to maintain an industrial fire fighting organisation on site. Here, the first line of defense falls onto Falck as a result of the municipal fire brigade being unable to be present within the mandated times of arrival. Both locations are looking into the possibility of a public-private partnership with local authorities.

Current research

The four different models from the Netherlands demonstrate the possibilities when companies start working together in a mutual aid construct or join forces with the local authority. But there might be other models from which local authorities and industry can learn. Indeed, information and insights have already been shared in Sohar (Oman), Antwerp (Belgium), Essex (England) and MSC (Sweden). Kappetijn Safety Specialists aims to map out the current state of mutual aid and PPP worldwide, going beyond providing an inventory of organisations and their locations but also setting out the organisational setup, governance structures, tasks, methods and finance models.

The types of questions the research aims to answer include: is collaboration limited to operational incident control? Is there also cooperation in other fields like promotion and safety briefing, risk control, education and training? How effective are the various models in their respective surroundings? Are the newly found collaborative formulas also applicable in other areas?

The goal of this investigation is to share knowledge and exchange experiences to become stronger and improve fire safety in industry on an international level. Industrial fire fighting is highly specialist in terms of knowledge, competency, materials and equipment, which is why professionals should join their forces across borders. We want to facilitate that by making the results of the investigation available through JOIFF, as an international and independent interest group for industrial fire care and hazard management.

We hope that many companies and cooperative organisations will be willing to participate in the investigation and provide an insight into their own mutual aid experiences.

To take part in the research contact Kees Kappetijn on k.kappetijn@kappetijn.eu or Philip Stohr on p.stohr@kappetijn.eu.

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