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ADVISING ON FLOOD RISK – OPPORTUNITIES AND CHALLENGES ACROSS INTERNATIONAL COMMERCIAL PROPERTY MARKETS

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ABSTRACT

There is an increasing body of research which identifies the need for flood risk mitigation advice and the potential for building professionals such as surveyors to be involved. This research explored the potential for surveyors to play a greater role in advising on at-risk commercial properties to better manage risk within the commercial property sector. Through a series of 72 expert interviews of professionals in the field of flood risk management in five international markets (UK, US, Australia, China and Germany), the research developed a picture of the current and potential role surveyors can play in providing professional advice on flood risk affected commercial properties. The interviews revealed that a wide set of opportunity lies in expert surveyors' technical and local knowledge and understanding of risk mitigation and damage reduction processes, building typology, commercial land use, property valuation, and insurance schemes. However, their ability to offer flood specific advice is constrained by lack of: flood related expertise and training, market demand, client awareness of flood risk and, an willingness to invest in advice and mitigation measures on behalf of clients. The research highlights the need for collaborative practice to enable well informed all round advice on flood risk resilience. The findings also highlight the need for additional flood risk education and training for surveyors to assist them to provide improved risk mitigation advice.

Keywords: expert interview, flood risk mitigation, insurance, surveyors, valuation.

INTRODUCTION

Research has highlighted the impact of flood risk on commercial property insurability, maintenance and recovery, property utility and, ultimately, property value (Bhattacharya-Mis and Lamond, 2016; Bubeck et al., 2012; Kenney et al., 2006). Recent flood events (Australia 2011; US 2013 and 15, UK 2013, 14, and 15; Germany 2013 and 16; China 2013, 15 and 16) and the evolving response by governments, insurers and property markets also make this topic highly relevant. Within the

commercial property sector, there remain questions about the optimal strategies for improving flood risk awareness and risk reduction to accrue benefits from less downtime, less lost wages, and continuity of business in the aftermath of flooding (Kreibich et al., 2011). An improved understanding of flood risk and mitigation on behalf of property owners and occupiers will help engender a more resilient built environment. Surveyors can therefore play a key role in developing the capacity to improve flood risk management by providing informed advice and guidance to property owners. However, it is unknown, what potential role surveyors can play in providing flood risk advice to the owners and occupiers of and investors in commercial property. Previous research which was largely concentrated in the residential property sector has not considered the variety of international risk disclosure, insurance and regulatory regimes within which commercial surveyors function. Research in the UK shows that the realisation of potential benefits from mitigation advice is still limited (Pottinger and Tanton, 2012) and the involvement of surveyors in the context of resilient flood recovery and reinstatement processes has been found to be constrained to date (Ingirige et al., 2012). The aim of this research was therefore to identify the opportunities that are available for chartered surveyors in providing professional flood risk advice in the commercial property sector, and the barriers in their path in an international context using evidence from UK, Germany, China, US, and Australia. A recent RICS research report (RICS, 2017) has published further results from the study.

CONTEXT

Previous reports within the commercial property sector have stressed the importance of the valuation due diligence process in order to identify risks from flooding, reduce uncertainties in property value and advise on possible mitigation during property transactions and at valuation (PwC, 2010; Pottinger and Tanton, 2014). As part of this due diligence process it is important for surveyors to provide appropriate physical, environmental and structural surveys for properties at risk to avoid the charge of negligence (Pottinger and Tanton, 2011). A small number of studies have made the case that building level adaptation and improved management of facilities, including emergency plans, for commercial property is a cost effective mitigation strategy (Walliman et al., 2013; Gissing and Blong, 2004). Ingirige et al. (2012) have discussed the need for building surveyors to build capacity in the area of flood risk and commercial property in the UK. A recent review by Defra in the UK (Defra, 2015) examined case studies on residential property level protection in four international markets noted that local perspectives and circumstances resulted in very different understanding and demand for property level advice and surveying practice. Some reviews of the availability of disaster insurance touch on the commercial sector (Consorcio de Compensacion de Seguros, 2008), including research on the management of facilities to minimise flood impact (Seifert et al., 2010; Vallee and Duval, 2012). Impacts of flooding on property value have been researched in the UK (Kenney et al., 2006; Bhattacharya-Mis and Lamond, 2015). Meanwhile the RICS are taking a lead in developing and embedding international standards which can be recognised throughout the world (RICS, 2016). These standards sit across the surveying profession, providing a common framework for all practitioners through working with over 100 other professional and setting international standards globally. Collectively, these organisations own the standards which are implemented by their own professional guidelines. Therefore, consistent with this global perspective to

understand the practice of providing flood risk advice within the commercial property sector, such work is required to draw lessons from different international locations. This research, by investigating the opportunities and barriers in terms of roles, skills, and capacity of building professionals such as surveyors has important implications for reduced flood risk across key world regions. While approaches, flood patterns and constraints differ across these regions and will continue to do so, surveying practice in an increasingly globalising property market seeks to harmonise. Therefore learning from the international examples will help to identify where standardisation may be possible as well as opportunities for international good practices to be adopted or adapted to local risk situation, financial realities, flood histories, policies, building laws and cultural norms.

METHODOLOGY

A qualitative approach was adopted in this research to explore the barriers and opportunities for surveyors dealing with commercial properties in providing flood risk mitigation advice. Previous quantitative survey research indicates a lack of awareness and experience among surveyors in dealing with flood affected properties. To outline the barriers and opportunities for surveyors requires consultation with experts that have understanding of dealing in commercial properties affected by flooding. This dictates a qualitative approach of in-depth interview with a carefully chosen target population. Specifically the study made use of in-depth interviews with a target population of building professionals (surveyors, insurance experts, valuation surveyors and investment experts) with understanding of commercial properties and flood risk adopting best practices in qualitative research design (Silverman, 2013; Robson, 2011). A purposive sampling strategy was used for identifying the experts with relevant experience in each of the five international locations. This approach was useful in acquisition of existing knowledge and practice in the selected countries. Further, a comparison of the skills, needs and challenges among building professionals was possible through this approach which enables the development of a conceptualisation of opportunities and barriers (Silverman, 2013). There is a significant amount of heterogeneity in flood type, nature and development of the commercial property sector, legal regulations through which building construction is managed, insurance industry processes and their role in flood risk reduction as well as the role played by building professionals in dealing with all the above mentioned aspects. The emerging practice and patterns of services provided by building professionals in different countries provided insight on the necessary aspects of capacity building within the sector.

Semi structured interviews were conducted with 72 experts having a variety of different experience in advising with regard to flood risk affected properties in the selected five countries (Australia, China, Germany, UK and USA). The size of sample was felt to be appropriate in advance given the in-depth nature of research and the limited number of building professionals working in this area and adopted best practices outlined in (Robson, 2011; Moser and Kalton, 1979; Bell, 1995). In retrospect it appeared that sufficient experts were consulted to reach a saturation point on the major themes as significant consensus surfaced within each country sample. Each interview was transcribed, translated (where relevant) and coded within prior and emerging themes to identify, articulate and organise the concepts that emerged around the main theme of flood risk advice. This approach enabled a retrospective reflection

of the commercial property sector internationally and the experience of building professionals through interviewees' narratives.

RESULTS AND DISCUSSION

The following section based on the interviews identifies the current trends and future opportunities for the building professionals in a country specific manner.

Australia

In Australia, the general consensus called for land-use planning with adoption of appropriate development types, designs and construction qualities in accordance with the level of flood risk. Flood prone areas have historically been used for industrial/retail or commercial zones car parks located below ground level which were deemed sacrificial in case of occurrence of floods. Although due to the ease of transportation of heavy goods, the use of riverside locations was much more convenient for industrial properties in spite of the risk. There is however the issue of changing land-use, from purely industrial to commercial and high density residential spaces bringing increased risk of extensive flooding on properties lacking flood appropriate adaptation measures. The perception of surveyors varies according to the region in which they practice. For example one surveyor working in New South Wales comments on the impact of flooding on value of property as: "*in terms of flood risk for commercial properties, I'll be honest and say it probably hasn't been a big issue"*. The lack of motivation among clients and the high cost of installation of measures were indicated by surveyors as important obstacles for advising. Surveyors are also concerned about liability issues that might arise in case of improper advise due to lack of proper expertise in the field.

The opportunities for roles played by surveyors as seen by the interviewees in the field of flood risk mitigation can be divided into two phases, pre-flood and post flood in terms of re-instatement and redevelopment of buildings, land-use planning, insurance discounts and valuation. There are opportunities for surveyors to increase risk awareness when they can advise their customers on consideration of flood risk and taking up of appropriate risk reduction measures to minimise future loss and damage. Interviewees noted that some traditional building designs and incorporation of local knowledge result in more resilient stocks and building surveyors have the possibility to be cognisant with those mentioned opportunities when advising clients. The interviewees acknowledged the need for due diligence in the context of providing advise with changing locations, construction design and changing climate as a result changes in risk situation.

China

In People's Republic of China (PRC) and Hong Kong, documentation of role of the surveyors in flood risk management of any kind is unavailable and there are no current policies, practices or schemes that act as a guidance for surveyors to take such responsibilities. As one of the interviewee commented "*We (surveyors) cannot interfere the drainage system of that street or district, as that is not our responsibilities, but that is the job for municipal water bureau…*". According to the national construction project management authority (CPM-China, 2016), building surveyors are required only to consider drainage conditions such as water seepage, leakage of drainage pipes in the property or infrastructure before and after "*release of*

the water" (SBSM, 2016; HKIS, 2016). The interviewees (all RICS chartered surveyors) noted that despite several floods, the general public perception towards flood risk reduction in the commercial property sector is low and the demand for such properties is constantly high with or without risk of flooding due to the locational advantages of city center CBD areas. As a result, there is a lack of a client base seeking advice from surveyors. Due to the nature of occurrence of risk in the city center areas where the interviewees are based, most of them have shared their views on surface water flooding rather than fluvial or coastal floods especially for the major commercial cities in the PRC such as Shanghai, Guangzhou, Shenzhen and Hong Kong. There is a perception among surveyors that the current level of flood protection in those areas is adequate to cope with the risk of flooding. According to another interviewee, the responsibilities of managing drainage issues lie with the municipal water bureau and they cannot interfere with the effectiveness of the existing infrastructure. The responses from surveyors and a review of the technical surveying guidance, the '*General Specification for Building Maintenance Works in Commercial and Residential Buildings*' produced by the Building Surveying Division (BSD) of the Hong Kong Institute of Surveyors (HKIS) indicated that surveyors are mainly responsible to survey pipes, leakages and waterproof materials of roofs and walls of the property before and after "*release of the water or flooded*" (HKIS, 2009).

The general consensus among interviewees was that professional advice and guidance from surveyors (particularly building and valuation surveyors) following technical standards and specification guidelines in flood-proofing can play a vital role in building resilience. However the lack of such a specific document hinders the role that building professionals can potentially play. There are opportunities for surveyors to provide professional advice on improved flood resilience and flood proofing to encourage preparedness for changing climate to their commercial clients so that awareness can be enhanced and steps can be taken to develop better guidance for flood risk mitigation.

Germany

In Germany, two main problems of surveyors providing flood risk advice were agreed by interviewees: first, surveyors have a lack of adequate local knowledge of flood hazard and risk, including the history of previous incidents in the area. Second, many surveyors lack relevant 'engineering' training to provide appropriate advice on structural aspects of the building and on suitable protection measures for future risk reduction. There is the indication that experts in flood risk management often charge high rates to provide consultation and professional advise on mitigation activities. Mitigation activities also require high investment for installation and maintenance of measures. As a result there is a lack of motivation among clients seeking advice and to invest in mitigation activities. However, all interviewees agreed that there are various possibilities where surveyors can provide flood risk advice to their commercial clients. Additionally, the surveyor agreed that may be able to indicate the advantages of implementation of suitable flood precautionary measures for the companies in terms of future damage reduction and avoided business interruption time. For instance one interviewee suggested: "*the task of the surveyor is to identify the most cost-effective measure […] as well as suitable types of measures with which he [the company] can live with. This needs to be suitable solutions for everyday use.*" Suggestions were made that advice can involve structural improvements, secure production and storage but may also cover the question of continuity of production. Interviewees indicated

that surveyors can also provide advice on installation of suitable mitigation measures for risk reduction making properties more insurable by including potentially reduced premiums or deductibles. Surveyors working for insurance companies assess the flood hazard and risk of the property on site. In a post flood situation surveyors assess structural building damage caused by floodwater that might have effect on the lifespan of the building. While applying for loans, banks may take into account the location of the property within a flood zone or not, and may check if there were any previous flood damages at the property. Surveyors can provide advice on the value of the property, e.g. in respect to mortgage applications.

United Kingdom

In the UK, surveyors offer advice to commercial properties in terms of assessing damage loss and reinstatement strategies in a post flood scenario, risk assessment during property transfer and valuation for investment purposes. Interviewees noted that there is a gap in understanding of available risk information on a case by case manner and to provide advice on appropriate mitigation measures. As one of the interviewees suggested: *"....all you really need to get to is 'what's my level of risk, physically, on site' and then it's all building surveyors skill set to do the next section of that and also, you're impartial, I think that's the thing that the industry suffers from, the fact that proprietary products market themselves incredibly well out there and people are vulnerable..."*. It was mentioned that without such well qualified professionals, often quick fixes lead to long-term problems such as moulds, compounding the short term damage. Recognition of the need for people with knowledge and experience in risk assessment, and insurance issues is also lacking in the industry as this is not considered to be a specific role building professionals can play. Therefore there are very few professionals that clients can rely on for advising on those specific matters. Valuers added that with property investments the valuation assessments are carried out including various environmental checks including flooding. However they also added that advice with reference to property investment is provided with appropriate caveats and at a very general level due to lack of flood specific expertise or guidance.

The building professionals recognised that there is a need for advice and the potential for surveyors to be involved but were unsure how much is actually happening in practice. The need for synergy among different building professionals such as environmental surveyors, building surveyors and valuers with general surveyors calling in specialist flood risk expertise as needed emerged as one of the major opportunities within the industry.

United States of America

The most applicable role of surveyors in the United States is seen in the certification of Elevation Certificates. These certificates are essential for multiple purposes such as insurance premium determination of any structure, to support a Letter of Map Amendment (LOMA) to contest flood insurance requirements or for checking the recommended compliance to be elevated above Base Flood Elevation (BFE) or to be made watertight to the newly built commercial properties in 100 year flood zone. The information required for an elevation certificate is property information, Flood Insurance Rate Map specifications (including BFE and the datum used) and elevation information of the building specifying the structure's lowest enclosed area, and the surveyors need to be well qualified to understand the risk and certify the building to be

safe (FEMA, 2012). The surveyors can, but are not required to, also provide advice on flood proofing as part of the process of meeting National Flood Insurance Programme (NFIP) requirements. The barrier to this task is that despite NFIP requirements that all new properties in the designated floodplains be surveyed in compliance with Elevation Certificate for submission to FEMA the surveyors do the minimum to complete the certificate. The builders as a result do not have any help in getting advice for understanding the risk and opportunities for mitigation measures for damage reduction in future. As one of the surveyors mentioned: "*More than a majority of surveyors dabble in floodplain work and that is a very dangerous area to be – lots to learn". A lot of surveyors go out pull up a FIRM (Flood Insurance Rate Map), interpolate between some BFE lines on a map, determine what BFE is for site, do the elevation survey, give them the certificate and don't provide other information on what they can do to make structure safer or about insurance*."

There are opportunities for surveyors to learn more on advising about flood risk reduction advising appropriately to the developers so that they can make a more informed decision to take up mitigation measures and make buildings more resilient. There are off course some specialist surveyors who are experts in this field and can provide helpful guidance in addressing flood affected properties, however their numbers are low and there is indeed a need for more qualified surveyors in the field.

Cross country comparison

A comparative analysis of the responses from interviewees in different world regions is discussed in this section along with some of the steps taken by the local authorities to enable building professionals to better advise their clients affected by risk of flooding. Currently in all five countries surveyors provide some aspects of advice on risk mitigation and property valuation. Property valuation advice was not seen as a new opportunity by commercial valuation surveyors as it falls within the service already provided by them. There was a feeling that where surveyors have greater in house skills they might avoid the risk of negligence claims, save money on expert surveys and potentially gain reputational enhancement. However, the general consensus among interviewees from all countries was that there are multiple opportunities for qualified and well trained building professionals to provide better informed advice to reduce the risk of flood damage in the future. Figure 1 below represents a global view of the opportunities and barriers for surveyors based on the interview data. Advice around insurance and facilities/asset management was seen as an opportunity as well, highly linked to the mitigation measures that might be needed in order to maintain cover. Nevertheless there were plenty of challenges identified in realising these opportunities. The majority of the interviewees mentioned the lack of interest among clients with commercial properties to understand their risk and that most do not have the motivation to take up mitigation measures for future risk reduction. The reasons include a lack of specialised advice, high financial cost of professional advice on flood risk, lack of risk awareness among clients and building professionals, and lack of synergy among building professionals.

Insurance regimes and regulations as well as availability of information led to differences between countries. For example the requirement for the NFIP to obtain Elevation Certificates is not a general practice elsewhere, however this may mean that in the US there is less consideration of alternative mitigation advice. The obligation to hold property insurance in China might make it possible to force mitigation through

the insurance sector whereas the insurance sector may be less influential elsewhere. While there are factors which emerged as specific to certain countries due to regulatory requirements or low risk perception, often it is in the scale rather than the substance of the challenge, on which these countries differed. There are opportunities that emerged from the interview data that might potentially be transferred across countries. The use of certificates such as the German 'Hochwasserpass' (an innovative and useful document for location analysis and assessment of existing or planned private and commercial properties in flood-prone areas) being a case in point.

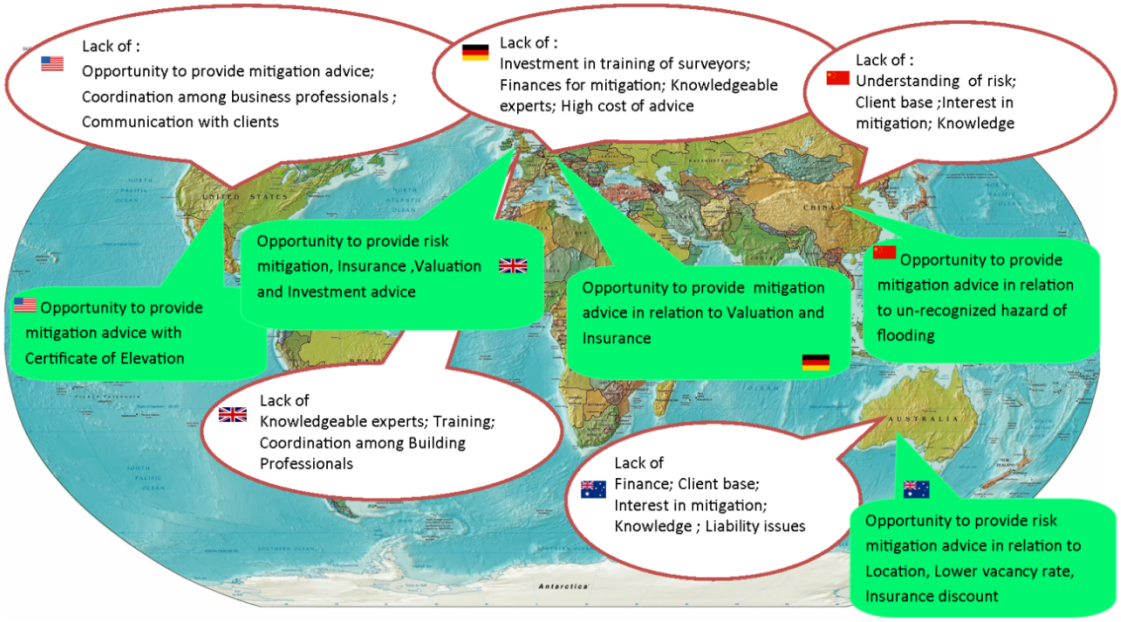

Figure 1. Showing opportunities and barriers for surveyors in response to flood risk advising to commercial property clients: adapted from RICS, 2017

To manage and advise on flood risk in the commercial property sector successfully, professionals need diverse levels of knowledge. There is need for effective and informed guidance and training structure which will be able to provide sufficient expertise to building professionals to become more involved in the processes of risk reduction, flood awareness and response. Steps are taken by some local flood management authorities to offer training programmes to the building professionals to close the gap between demands for well qualified professionals in the field of flood risk management. For example in the US, in conjunction with FEMA, a pilot programme was implemented in North Carolina to train surveyors to become Certified Floodplain Surveyors. Apart from training surveyors for processing Elevation Certificates, the other opportunities that such trainings can provide are the ability and motivation to provide expert advice to clients on risk reduction through the process of certification of elevation to go beyond what is minimally required by FEMA. However much needs to be done to meet the actual demand for experts to increase the number of surveyors with appropriate expertise.

SUMMARY AND CONCLUSION

This research highlights the vital role chartered surveyors play in all countries studied by providing professional advice on commercial properties at risk of flooding. Surveyors are found to be providing advice on: flood risk for new developments and

for building adaptation and reinstatement; building structures, maintenance of surface water drainage systems; assessment of risk and development of risk maps including advice on flood precautionary measures; levels of damage and advice on property valuation; risk mitigation measures; and Elevation Certificates and flood-proofing certificates. There is also potential to increase this role, both from learning across countries where currently surveyors are not involved in a particular aspect but also from raising awareness and demand for services already offered. However there are many challenges and barriers to be overcome if surveyors are to play a more central and consistent role in this context. Some relate to lack of demand from clients and the importance of regulation and insurance in providing motivation for property owners and occupiers to engage with the issue and raise demand for service is noted. Others relate to the perception by surveyors that this is not their role or that they are not skilled enough to offer advice. There exists a lack of experience, knowledge and expertise relating to flood risk among the surveying profession especially at the specific property level. The need for further training and development of expertise in managing flood risk is highlighted but so too is the recognition that surveyors may require the support of other stakeholders, including insurers, engineers, architects, and lenders, among others. There needs to be greater communication among all stakeholders and a more integrated proactive approach both to increasing risk awareness and giving advice on mitigation.

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