Putting policy initiatives into practice: Adopting an "honest broker" approach to adapting small businesses against flooding

Abstract

Purpose (mandatory)

Amidst the current economic climate, which places many constraints on expensive flood defence schemes, the policy makers tend to favour schemes that are sympathetic to the needs of small and medium-sized enterprises (SMEs) and which promote empowering local communities based on their individual local contexts. Research has shown that although several initiatives are in place to create behavioural change among SMEs in undertaking adaptation approaches against flooding, they often tend to delay their responses by means of a 'wait and see' attitude.

Design/methodology/approach (mandatory)

This paper argues that unless there are conscious efforts in the policy making community to undertake explicit measures to engage with SMEs in a collaborative way, the uptake of adaptation measures will not be achieved as intended. With the use of the 'honest broker' approach the paper provides a conceptual way forward of how a sense of collaboration can be instigated in an engagement process between the policy makers and SMEs, so that the scientific knowledge is translated in an appropriately rational way, which best meets the expectations of the SMEs.

Findings (mandatory)

The paper proposes a conceptual model for engaging SMEs that will potentially increase the uptake of flood adaptation measures by SMEs. This could be a useful model with which to kick start a collaborative engagement process that could escalate to wider participation in other areas to improve impact of policy initiatives.

Originality/value (mandatory)

The paper lays the conceptual foundation for a new theoretical base in the area, which will encourage more empirical investigations that will potentially enhance the practicality of some of the existing policies.

Key words: SMEs, climate change, flooding, adaptation, honest broker

Introduction

The Environment Agency in the UK estimates that over five million properties, amounting to one in six, are located in flood risk areas in England (Environment Agency, 2009a). Flooding is of course a global phenomenon that each year claims around 25,000 lives worldwide (Proverbs et al., 2008). The increased frequency of flooding, the growing number of properties being constructed on floodplains and the increase in urban dwellings suggest that these statistics are set to worsen in the future. This is further confirmed by the growing scientific consensus that climate change is expected to amplify the prevalence and severity of flood risk, due to changes in winter precipitation, rising sea levels, storm surges and other extreme weather events (Evans et al., 2004; IPCC, 2007; Stern, 2007). In the UK the effect and impact of flooding is highly topical and the Strategic Defence and Security Review conducted in 2010 (HM Government, 2010), found that flooding and coastal erosion is an item at the top of the agenda having a significantly high risk in terms of economic, social and environmental consequences. Therefore adopting measures to avoid or to control flood disasters and disruption has received much attention from policy makers and scientists.

Flood protection can be grouped into structural (community flood defences and individual property protection measures) and non-structural (e.g. business continuity measures and adjusting and re-aligning business processes). Wrachien et al (2011) describes structural measures as capable of controlling the flood hazard at source (although this paper takes structural measures to mean any physical measure to resist flood damage) and non-structural measures as managing flood risks through influencing and reducing the vulnerability. Several cities and towns in the UK have been protected both historically and currently from major flooding by community defence schemes. But given the prohibitive costs of both the initial investment and regular maintenance involved, and other competing demands placed on the overall Government budget spending on flood defences is likely to decline. Further, community flood defence mechanisms such as storage basins, raised river embankments, coastal defences etc., cannot, on their, own make vast areas flood proof. As with time, and the changing climate, the sustainability of large community defences is called into question. It is therefore almost impossible to gain absolute protection against floods or make vast areas flood proof indefinitely. These schemes have to be regularly revisited amidst the growing scientific evidence that suggests continuous changing climates and frequent occurrence of extreme weather events. From a policy making angle, there is also a shift in exploring how to sustain life and ordinary business amidst the changing climate concentrating more at an individual property level (Defra, 2008; Environment Agency, 2009a; Defra, 2011); thereby empowering communities rather than focusing too much attention on large scale flood defences.

Defra's (2011) report identifies that communities at risk of flooding should learn to live and adapt to flooding by implementing adjustments to their property (structural measures) and processes (non-structural measures such as business continuity strategies) rather than relying totally on insurance or the Government to invest in expensive schemes. Although theoretically this shift seems quite rational, there have not been any significant action plans or initiatives that have emerged to implement the measures in practice. Many cities and towns that are at risk of flooding are abundant with small and medium sized enterprises (SMEs) whose existence is central to the survival and vibrancy of communities living in those cities and towns, mainly due to their ability to generate employment (BIS, 2012a). SMEs, which are generally identified as businesses with less than 250 employees (BIS, 2012b), have been reported as some of the most vulnerable to and worst affected by the impacts of flooding

(Crichton, 2006; Pitt, 2008; Wedawatta et al., 2012). It is prudent therefore to investigate property level measures both structural and non structural that will enable SMEs to sustain their businesses regardless of the status of the existing community flood protection scheme; if any. The objective of this paper is to investigate the application of the "honest broker" (Pielke, 2007) approach as a practical way of enabling the SMEs to survive and sustain amidst the ever-increasing flood risk and to present a conceptual foundation for a new theoretical base in the area. This conceptual foundation will potentially enable successful implementation of practical measures in collective forums between policy makers and the SME community by engaging in consensus-oriented decision making. From a policy making point of view the paper argues that adopting an "honest broker" approach will enable the stakeholder groups to explore appropriate property level protection measures, both structural and non-structural, utilising the aspect of collaborative governance rather than adversarial mechanisms favoured by one party. The paper will propose an SME engagement model as a conceptual base to practically implement the required policy making measures in this area. This will enable SMEs to enhance their level of resilience and provide the leadership in adapting their businesses, which will be significant from a community point of view.

The rest of the paper is organised as follows. First, it reviews the structural and non-structural measures of flood protection, thereby introducing the wide and varied combination of measures available to communities. The paper then identifies the important role that the small and medium scale enterprises play within the community agenda. Next, the paper contextualises the problem of the gap between the initiatives of the policy makers and the SMEs risk perception, which could be solved by application of the 'honest broker' theory into the practical scenario of collaborative engagement between SMEs and policy makers. The process that needs to be followed is then described and discussed followed by conclusions and recommendations.

Structural and non-structural measures of flood protection

According to the pressure / release model (Blaikie et al., 1994) a community experiences a disaster when the pressure of a hazard (e.g. for instance, here a major flood) meets the pressure of vulnerability. Therefore, disaster risk reduction and improving resilience is a journey that a community (at risk of a hazard) undertakes in both reducing the pressure of hazards and reducing vulnerability, thereby adjusting both sides of the equation as posited by the pressure / release model. Whilst, they are inter-related and contributory to each other, in the main adopting structural measures could be directly attributable to a reduction in the pressure imposed by flood hazards and adopting non-structural measures could directly reduce the vulnerability of a community. Structural measures can be identified as "physical", tangible measures that seek to increase the flood resistance (by preventing flood water entry in to a property) and flood resilience (by minimising the impact of flood water on a property) of a property. From a SME perspective, non-structural measures can be identified as "soft," intangible measures, which allow a business to minimize the negative impacts of flooding as well as to recover smoothly following a flood event (Ingirige and Wedawatta, 2011).

The Environment Agency has predicted that flood defences managed by them had protected about 100,000 properties from flooding in the case of 2007 summer floods, which affected many parts of the UK (Environment Agency, 2009a). Still, over 55,000 properties were flooded due to that event (Pitt, 2008). Providing further evidence, the Environment Agency estimates that even with increased investment in flood risk management about 500,000 properties will still be left at high risk of flooding by 2035 due to various localised flood

situations not covered by the main community flood defences (Environment Agency, 2009b). Surface water flooding caused by the combined effect of heavy and prolonged rainfall and extreme ground saturation is difficult to prevent and the community wide structural flood defence schemes, which have been built to resist overflowing rivers, do not prevent surface water flooding. Therefore, despite the high investment in community based structural flood defence schemes, it is inevitable that appropriate property level measures at a more micro level are taken to increases flood resistance and resilience of at-risk properties. Furthermore, some of the large community flood defence schemes located on river banks, and coastal flood defence schemes might not have the flexibility to cater to changing climatic conditions such as sea level rise and the more intense and prolong rainfall patterns that have been experienced recently in many parts of the world. Flood disasters in the past have shown that the paradigms of 'flood control' and 'flood defence' sometimes cause more problems than they solve (Etkin, 1999; Fordham, 1999; Criss and Shock, 2001; Kelman, 2001). Instead, some researchers argue that learning to live with rivers (ICE, 2001), living with risk (UNISDR, 2004) and know risk (UNISDR, 2005) are becoming increasingly accepted, adopted and implemented.

Given that, practically it is very difficult to protect every property at risk of flooding through community level flood defence schemes, adapting individual properties at risk of flooding by implementing property-level measures such as installation of flood barriers (door guards, airbrick covers etc.,) and putting up sand bags to resist the effect of flooding, or by installing resilience measures such as installing concrete floors as opposed to carpets or timber floors so that the property owners can return quickly to the property once flood waters recede can be very important (Environment Agency, 2009a). For small businesses, returning to properties is extremely critical to their survival and sustainability (Wedawatta et al., 2012). Business failure and disruption, due to flooding, can translate to insurance claims of very high magnitudes. For instance, in the case of the flooding in 2007, £1 billion was paid to businesses by the insurance industry (ABI, 2008a). However the process is not straightforward and comes with many challenges.

Aside from the above structural measures, SME property owners in particular, can consider adopting non-structural measures for purposes of business continuity. These could include general measures such as obtaining property insurance and business interruption insurance, business continuity planning advice, and home or flexible working for some of the employees whose work could continue despite the business being affected by flooding (Wedawatta and Ingirige, 2012). Some of these are general measures adopted for the purposes of managing risk and are popular among some commercial enterprises. On certain occasions they are written rules in their business plans. Previous research conducted in this area added a new dimension to this knowledge by investigating specific non-structural measures which are flood risk related and found that some SMEs for instance, signed up for a flood warning system, and a few even carried out a detailed flood risk assessment of their premises etc (Kreibich et al., 2007; Kreibich et al., 2008; Ingirige and Wedawatta, 2011; Wedawatta et al., 2012). However, these examples are very few and some of the micro sized businesses, which are found to dominate urban cities and towns, lack the necessary awareness, knowledge or the resources to implement any of these measures. Table 1 indicates details of flood protection measures adopted by SMEs affected by the Cockermouth flood event in 2009.

Table 1 – Non-structural flood protection measures implemented by SMEs (Adapted from Wedawatta et al, 2012)

Protection measure	As a % of SMEs opting for flood protection
Reviewing property insurance	44%
Relocating vulnerable/ important stock to upper floors	35%
Obtaining property insurance	22%
Conducting a flood risk assesment on property	22%
Storage of stocks/ equipment above floor level	11%

Except for a few occasions it was possible to observe evidence of flood risk related non-structural measures being implemented, an overwhelming majority of SMEs adopted various generic coping strategies that aid business continuity, rather than those that are flood related. This is confirmed by Crichton's (2006) study which found evidence of the measures adopted such as obtaining property insurance, having a business continuity plan, using a business data backup system, and obtaining business interruption insurance, which are general risk reduction measures that have been reported as good practice among the business community.

SME property owners at risk of flooding have access to a range of community level flood defence schemes as well as property level structural and non-structural measures, contributing to their overall level of resilience against flood risk (Defra, 2011; Wedawatta and Ingirige, 2012). Whilst the major community level flood defence schemes are the responsibility of the Government, local authorities and other Government agencies, implementing property level measures is down to the individual property owners. Wedawatta and Ingirige (2012) presented a continuum of structural (property-level) and non-structural (Business continuity) measures that property owners can consider implementing (see Figure 1).

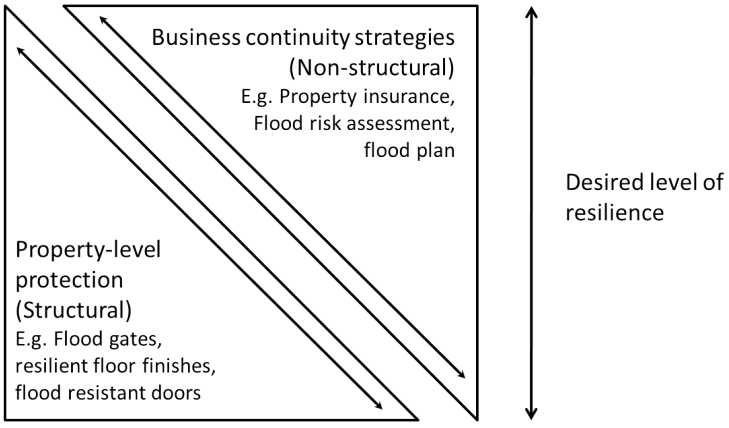

Figure 1 – Achieving a desired level of flood resilience via structural and non-structural measures by SMEs (Adapted from Wedawatta and Ingirige, 2012)

The above diagram explains the degree to which an SME could transit between adopting structural and non-structural measures from the perspective of an individual SME owner. By

the selection of the appropriate combination of measures the SME owner could vary the degree of resilience and the level of adaptation to flooding. The community defence schemes are separate and that will also have an influence on the individual measures implemented.

The dilemma facing policy makers and SMEs

Businesses facing a flood event are affected not only directly (property damage and disruption) but also indirectly due to the effect of customers and SME supply chains being affected. For instance, Peck et al (2010) reported that after the 2009 flood event in Cockermouth, Cumbria, the flourishing tourism industry in the area was significantly affected tourists were deterred from visiting the region due to the impression that the region was inaccessible. Not only during the immediate aftermath of the flood event, but even several days after the event, the perception that the access is not good can pose major challenges to small business owners. Key members of the SME supply chain such as the suppliers as well as distributors, might find it impossible to access the business premises due to the flood event, hence the cascading effects of a flood disaster can have a major impact on several businesses resulting in a major societal crisis. For instance, the total damage, from ABI's assessment following the 2007 floods in the UK, came up to £3 billion (ABI, 2008b). Therefore, from a policy making point of view, it is primarily essential that small businesses have access to the key knowledge relating to the range of property level flood protection measures and business continuity strategies that are appropriate to their individual business (Thurston et al, 2008; Wedawatta and Ingirige, 2012). Once this primary goal is achieved, and once the specific flood risk that the SMEs are exposed to at any particular moment is known, they can then consider the specific range of measures using their decision making process.

Berkhout et al (2004) observed four alternative strategies taken by businesses in dealing with risks. These are "wait and see", "risk assessment and options appraisal", "bearing and managing risks", and "sharing and shifting risks". "Wait and see" is a deferral strategy, where the organisation will delay taking any measures to mitigate risks based on skepticism or uncertainty. This strategy can be directly applied to the behaviour of SMEs when they are faced with high risk of flooding. Under the next strategy, an organisation assesses the various adaptation options available in "Risk assessment and options appraisal". Bearing and managing risks is a strategy where the risks and opportunities arising are managed using existing organisational resources and capabilities. In "Sharing and shifting risks", organisations attempt to transfer risks to external parties. This strategy can be compared with approaches such as obtaining insurance against flood damage. Therefore, organisations were perceived to have four alternative adaptation strategies available for each "mode" of organisational adaptation. Current evidence on the adaptation of businesses to weather extremes such as flooding (Tierney and Dahlhamer, 1996; Alesch et al., 2001; Yoshida and Deyle, 2005; Crichton, 2006; Dlugolecki, 2008) seem to suggest that they are often limited to the "wait and see" strategy, as many businesses were found to be without adequate coping strategies. Wedawatta et al (2011) also reported that SMEs who did undertake specific measures against flood risk did so as part of their ordinary risk management strategies, and not as a response to the specific threat that they are facing in terms of future flooding. Therefore, it is unlikely that from the point of view of a community as a whole, that small businesses at high risk of flooding, who are well informed of the range of options illustrated in Figure 1, will either adapt their properties or adopt non-structural measures. Due to the most commonly adopted "wait and see" attitude, it is unlikely therefore that even if awareness campaigns are conducted to make the community aware of the benefits of flood

adaptation, that the desired behavioural change will be achieved. Furthermore, Sullivan-Taylor and Branicki (2011) have stated that their study found that SME managers often needed assistance in establishing the priorities among the relevant threats facing them and they lack the resources and initiative to undertake such tasks.

Against the above backdrop, it seems that the current policy making initiatives that target certain behavioural change among small businesses falls short of practical mechanisms, which are sympathetic to the needs of SMEs. The Defra's Flood and Coastal Erosion Risk Management (FCERM) strategy (2011) on empowering communities emphasises that local communities should;

1. Take part in any public consultations (for example, on any future local strategies) and otherwise working closely with local authorities to ensure local views and ideas inform their decisions.
2. Make sure they are represented in local flood risk management partnerships (or equivalent) and community resilience initiatives, such as flood or coastal action groups, preparing community flood action plans, or promoting schemes to make properties more resilient to flooding, or helping the community adapt to coastal erosion.
   (Defra, 2011: 14)

The above actions within the FCERM strategy is intended to empower communities in decision-making measures against flood risk. The stakeholder engagement and participatory processes built around implementing the FCERM strategy could be further customised to ensure that the measures are sensitive and appropriately aligned with the case of SMEs. The SME businesses could then develop an understanding of the sensitivity of the property level adaptation strategies and business continuity strategies towards the overall profitability and sustainability of the enterprise. It is therefore argued that the current status, which could be improved with a higher uptake of SMEs undertaking property level and business continuity measures against flooding, if practical measures are derived in a partnership adopting an 'honest broker' approach. This will lead to more measures on adaptation looking towards future trends and initiatives rather than adopting more, narrower, mitigation options (Crichton, 2006; Norrington and Underwood, 2008; Bichard and Kazmierczak, 2009).

The 'honest broker' approach and the emerging criteria for action

The word 'honest broker' was proposed by Pielke (2007) as a means of bridging the tripartite divide between science, policy and politics. The 'honest broker' broadens the options of decision-making by going beyond the traditional roles of the 'pure scientist' or the 'issue advocate'. Scientific knowledge can be integrated with stakeholder concerns if the policy context is adequately taken into account. According to Pielke (2007: 02) "the defining characteristics of the honest broker of policy alternatives is an effort to expand (or at least clarify) the scope of choice for decision making in a way that allows for the decision maker to reduce choice based on his or her own preferences and values". Whist the 'issue advocate' seeks to compel a particular decision, the honest broker seeks to enable the freedom of choice by a decision maker.

This paper applies the above theory as the basis for a partnership approach between the overall policymaking community and small businesses. The policymaking community consist of a wide ranging body of institutions starting from the Government and its agencies such as Defra and the Environment Agency to more localised ones such as the local councils and

boroughs. On the other hand the SMEs tend to work around the local chambers of trade and community action groups that look after the mainstream interests of SMEs (See for instance Climate South West, 2012). Some of the Government agencies are more often perceived as 'issue advocates whose main interest is to compel SMEs to change their behaviour in accordance with their policies and plans. Quite in contrast to this view, the SMEs, often tend to perceive the local policy makers and the chambers of trader as the parties akin to being the "honest brokers". Therefore when adopting a partnership approach between the SMEs and the policy making community the strategy and the action plans should emerge as part of the knowledge transfer process rather than one party dictating what the other party ought to do in a prescriptive manner. The theory aims to identify a range of options for individual SMEs to consider (e.g. as indicated in Figure 1) so that SMEs make their own judgments about how they would like to position themselves in relation to the guidance and strategies. The 'honest broker' challenges all proponents in the decision making process (i.e. stakeholder engagement process) to think carefully about how best science can contribute to policy-making and a healthy democracy is expected to persist throughout. Such a strategy is bound to contribute towards more sustainable adaptation in the case of SMEs.

The slow uptake of measures against flooding is due to the nature of SME risk perception. The significance of the flood risk pertaining to an area is given in terms of probability of occurrence and communicated in terms of how many years it takes a flood event to occur (e.g. an area that has 1 in 75 year risk is prone to have a higher chance of flooding than an area whose risk is 1 in 100 years). Due to this probabilistic scenario and the relative uncertainty of flood events affecting an area, most SMEs are willing to "wait and see" (see Bekhout et al's (2004) strategies discussed earlier) rather than act immediately. This attitude can be disastrous in the event the SMEs are in imminent danger of facing a devastating flood event. It is argued that SMEs, by their very nature, do not have access to large amounts of financial and human resources. As a result they have limited opportunities to recover from any adverse conditions and quickly to turn around their business (Bannock, 2005). Therefore, SMEs may be hit disproportionately hard (Finch, 2004) when faced with extreme weather events such as flooding. The motivation and the enthusiasm of the SMEs to take up flood resilience measures can be enhanced with better risk communication that is sympathetic to their needs. The partnership process within a honest broker approach should allow better understanding of how the flood risk applies to SMEs so that appropriate resilience measures are taken. The honest broker approach therefore has the potential to speed up the uptake of measures among SMEs, which from the point of view of policy makers will be an important achievement.

In addition to the indifference that SMEs show in reacting to the flood risk, their understanding or awareness of their specific vulnerability to flood risk is also said to be lacking. This contention is generally supported by Sullivan-Taylor and Braninki (2011), who argued that SME's ability to understand relevant threats and priorities is limited due to their inherent lack of resources. This was further confirmed by the case studies conducted by Wedawatta and Ingirige (2012) in South East London. The case study of a retail SME indicated the lack of awareness of flood adaptation measures. The SME concerned who was flooded and was closed for 6 months as a result, believed that few preventive measures were available. This awareness can be improved if SMEs in one industry were to learn lessons from others in the same industry and try to analyse areas of business and property, which are exposed and highly vulnerable to flood risk. Further, the study done by Wedawatta et al (2011) revealed that SMEs in the construction industry, particularly small construction contractors could suffer significant disruption as a result of not being aware of the risk of

weather extremes and not considering this risk in project planning. Morris (2010) based on a study conducted in the South West of England presented the vulnerability of SMEs against extreme weather as dependent and sensitive to the specific industry to which they belong. The policymaking community could utilise a partnership approach to engage with SMEs located in specific flood risk areas and select them on the basis of industry classification, as most SMEs in one industry tend to display similarities in their exposure to flood damage. SMEs in a particular industry could therefore be engaged in a collaborative way by using the "honest broker" approach to present alternative measures to mitigate and adapt against their specific vulnerabilities to flooding. This process is likely to increase uptake of measures for mitigation and adaptation. The uptake could be further enhanced due to the critical mass that is gathered in the industry based selection process.

The starting point of the 'honest broker' approach is with the sciences and in this case it is the science of climate change and extreme weather patterns. The 'honest broker' approach helps the affected stakeholder group to appropriately understand the gap between the impact of the science and the dynamics of the current policies in meeting needs. This is achieved through a collaborative stakeholder engagement process between the SMEs in an area, their key network and supply chain partners and the local policy makers such as local councils and Boroughs. The key network partners such as the local chambers of trade for instance can perform the role of the honest broker as they usually have the trust of the SMEs as well as knowledgeable on the policy making front in terms of how the policies apply at a local level due to the frequent liaison between councils and Boroughs. The specific science that is relevant in this instance is the increasing flood risk consisting of surface water flooding, sea level increase and other connected extreme weather patterns. The main supportive policy making instrument is the FCERM strategy. Whilst it is the intention of the FCERM strategy to empower the SME community, the 'honest broker' approach takes this a step further by facilitating a transparent knowledge transfer process so that SMEs can make better judgements. Therefore the idea of the honest broker approach here is to bridge the gap between the science and the policymaking, so that actions that emerge as a result of policies are driven both by the SME context as well as the science. The situation of this knowledge transfer via the honest broker approach is shown in Figure 2.

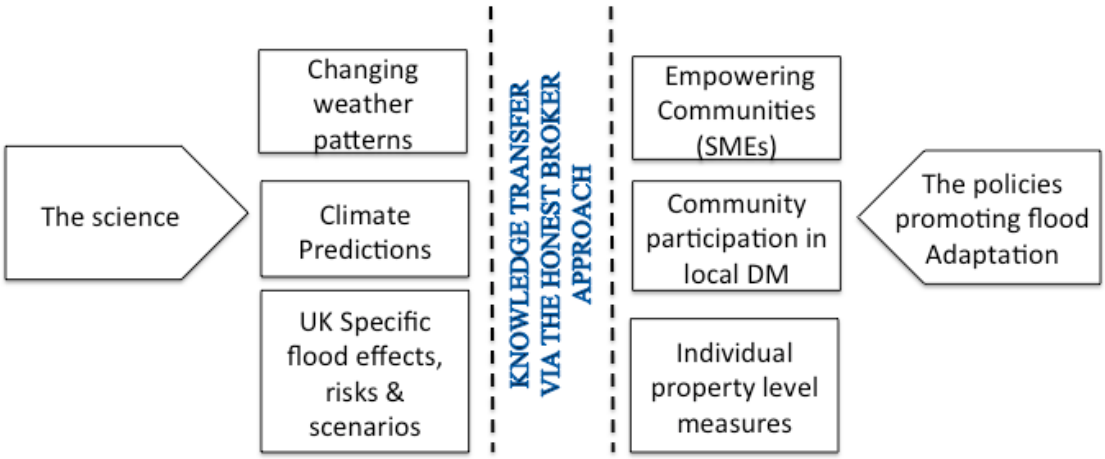

Figure 2: Conceptualising the gap between the science and the policy making

Figure 2 explains how the 'honest broker' approach makes sense of the science so that the SMEs in the chosen industry can make informed decisions. The principles of 'honest broker' approach are applicable in the context of SMEs and their vulnerability to flood risk as shown below as *steps* in an *emerging criteria for action*:

1. Understand the areas of risk, exposure or vulnerability of a SME business to flood risk
2. Get more information on alternative way of how to address the specific risk exposure or vulnerability (structural and non structural measures of flood protection)
3. Make an assessment as to whether the information presented compels a certain decision or behavioural change on the part of the SME
4. Consider the viability and appropriateness of the chosen decision or behavioural change.
5. Consider the possibility of making this information widespread via industry networks.

The underlying principle of the honest broker approach is not for one party to advocate or compel a particular decision, but to consider freedom of choice by the SMEs among a set of alternative choices amidst viability and appropriateness. As argued earlier each of these engagement actions are taken within chosen industry sectors as they display similarities and the SMEs can learn lessons from each other.

Discussion

The 'honest broker' approach allows the SME engagement process to first of all investigate the wider preparedness of SMEs and their ability to systematically respond to evolving flood risks and vulnerabilities. The process then allows the SMEs to go through the *emerging criteria for action* and to adapt their businesses utilising appropriate structural and non-structural measures of flood adaptation. This discussion shows how these measures are determined by utilising a risk assessment template to identify an SME's vulnerability and resilience to flood risk.

Step 1

The template for risk assessment (See Appendix-1 for summary of template) was developed with a specific flood risk focus based on Metcalf et al's (2009) original work on the Business Areas Climate Assessment Tool – BACLIAT. The BACLIAT toolkit was specially developed as part of the UK Climate Impact Programme (UKCIP)'s initiative to determine the resilience of businesses to climate change and other hazards. The tool helps businesses to assess their vulnerability to climate change and potential impacts of future climate change on different areas of their business and guides businesses to develop adaptation responses. The outcome of this exercise can be used to assist businesses to communicate risk in determining how resilient the different aspects of their operations are to extreme weather events (e.g. flooding, heavy rainfall, heavy snowfall, heat waves). The template is neither comprehensive nor definitive. The checklist however can be used as a simple guide to see how critically extreme weather events can affect different aspects of the SME business and which aspects require most attention due to the criticality of sustaining that part of the business. Wedawatta et al., (2010) further customised the BACLIAT toolkit to suit the context of flood risk. Studies by Brierley (2005), Burnham (2006), AXA Insurance UK (2008) and McManus (2008) also influenced the shaping of the areas of risk exposure and thereby the template. Based on the above studies, the areas of risk exposure were specifically customised to suit SMEs faced with the flood risk. The step 1 – initiates the discussion on preparing the conceptual basis as proposed within this paper.

Areas of risk exposure identified in the BACLAIT and how each business area relates to the risk of flooding is as follows;

a. Storage and premises – the materials needed for production and retail or other activities and the overall premises issue such as access and the importance of the premises to the specific business. Could the business still be carried out even if the business premises are flooded?
b. Effect on workforce – To what extent will the flood event affect the workforce coming to and going from work. Can the work be carried out despite the flood event, health and safety issues related to the workforce
c. Logistics and supply chain – Both the effect from as well as the effect to the suppliers and the customers, transportation and the relevant infrastructure such as roads and bridges
d. Operating markets – Is the market as a whole affected by flooding and if so does the company rely on a single market or is a diversifying option available and under consideration and viable?
e. Financial situation of business – Will the ability to generate finance be hampered due to a flood event?
f. Production and services – Disruption to production and / or service delivery

Step 2

The areas of risk exposure covered in items (a) to (f) under step 1, offers the opportunity for an SME manager to take a more balanced structured view of their business. The stakeholder engagement team based on the principles of the 'honest broker' approach can also gain input from several SME employees, depending on their size, (e.g. production manager, marketing manager human resources manager etc.,) so that the items in the template can be assessed and scored using wider information. The team can then arrive at the response scales for each of the items and develop an emerging story based on the template, which provides a view on the SMEs vulnerability to flood risk, not only from an operational side, but also in terms of facilities, human and other resources, infrastructure and supply chain issues affecting the business. Once the specific overall risk exposure to flooding is known, the SMEs (together with their key network partners such as the local chambers of trade as the 'honest brokers') can then consider what current structural and non-structural mechanisms are in place to understand to what extent their vulnerability to flooding has been reduced due to the current measures taken. The honest brokers can effectively communicate the risk and resilience measures in a way that is sympathetic to the specific SME context. This will enable them to consider a range of options that they ought to take in the future to further reduce their exposure to risk or their vulnerability.

Step 3

This step allows the SMEs to put all options on the 'table' and investigate deeper into alternative ways available to mitigate any risk exposure identified earlier. Finally the SMEs, their network partners such as the local chamber of trade can generate alternative strategies to respond to their level of vulnerability. Based on the scientific evidence and their degree of vulnerability, SMEs can raise self-awareness and ask themselves whether the situation really compels them to make a behavioural change.

Step 4

Under this step the SMEs, their key network partners consider the viability and appropriateness of the behavioural change of adapting their properties as well as processes in

line with the policy-making advice. The policy makers at the local level such as councils and boroughs frequently interact with the local chambers of trade and hence the local chambers are well positioned to interpret the policy framework applicable within a local context. This step will provide the SMEs with the opportunity of sharing information with other SME network partners before committing any resources in undertaking any behavioural change. Getting this additional piece of information from networks and other SMEs who have prior experience provides the SMEs with the incentive to share knowledge and good practice.

Step 5
Under this final step, SMEs will actually be sharing the outcome information, with added lessons learned in the behavioural change process, with other SMEs in the network. The policymakers, as well as the SMEs, will finally achieve the behavioural changes that culminate in a successful round of adopting the 'honest broker' approach.

Previous research by Wedawatta et al (2010) and Wedawatta et al (2011) dealt with SMEs and their resilience and coping strategies against flooding. This paper took a step further in synthesising policy making initiatives geared towards empowering SMEs to undertake adaptation measures against flood risk and proposing an appropriate conceptual foundation to better engage SMEs by applying the principles of the 'honest broker' approach. The conceptual foundation emerging under the 'honest broker' approach gives an opportunity for the policy makers and SMEs to engage collaboratively and improve the uptake of adaptation measures. This is important as it helps in situating further study and empirical investigation underpinned by this foundation.

Conclusions and recommendations
This paper discussed a transparent collaborative approach for SMEs to undertake measures for flood adaptation within the context of emerging extreme weather patterns. It argued that the process of flood adaptation by SMEs is not 'self propelled', and that SMEs do not automatically respond to the existing scientific evidence that is indicative of growing incidence of sea level rise, coastal flooding, increasing levels of ground saturation and surface water flooding. SMEs that are at risk therefore have to be part of a systematic and conscious process of careful engagement to ensure that transparent knowledge transfer takes place between the SME community and the policymaking community. The paper explored a conceptual basis on how the 'honest broker' theory could be applied within a collaborative engagement process between SMEs and their key network partners such as the local chambers of trade who are in turn networked with a wide range of local policy makers. It is anticipated that this process will potentially influence a better uptake of flood adaptation measures by SMEs. The paper therefore contributed to enhancing the practical value of the policymaking environment. It also introduced the 'honest broker' approach as the foundation for the development of a theoretical base for the field (see Figure 2 earlier) so that multiple case studies in different industries can be carried out using the process discussed in the paper.

The 'honest broker' approach was facilitated through the flood risk assessment template developed and adapted for use of those under flood risk. The risk exposure template offers SMEs and policymakers a clear mechanism to undertake informed decision-making. Further case studies using this template could benefit some of the flood prone cities and towns in the UK by populating its use and application. This will benefit both research, as well as policy makers in the UK, in the area of improving resilience and adaptation of SMEs against flood risk. The main implications of this paper therefore will be that the honest broker principle provides a practical way forward to popularise appropriate flood adaptation measures

amongst the SME community. The next phase of this research could focus on the empirical testing of the degree of uptake and assess the success of the conceptual foundation proposed in this paper. The conceptual base proposed within the paper will also contribute towards enhancement of the level of SME resilience, which will be significant from a community point of view.

From the international context, this study has the potential to be further developed as there is compelling evidence as covered in an International World Bank study that states the size of the market for disaster risk reduction particularly in developing countries as potentially large requiring significant annual investment (World Bank, 2010). Given this scenario and the degree to which SMEs contribute to local economies, this would mean that a collaborative engagement process guided by an 'honest broker' approach is likely to be beneficial in the long term, both economically, as well as socially. This paper lays an ideal foundation to embark on further research to develop a sound theoretical base and to accumulate good practice over the world in methods and measures of taking the policy initiatives to practice.

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Appendix – A

Extreme weather risk assessment Template for businesses

Assessment of business resilience to extreme weather events – Summary

Business areas	Vulnerability					Resilience				
	Very high	High	Moderate	Low	Very low	Very high	High	Moderate	Low	Very low
Storage and premises										
Risk to business premises										
Stocks and equipments										
Internal environment, working conditions										
Business information, data										
Accessibility										
Effects on workforce										
Travel arrangements										
Awareness										
Skills and competencies										
Roles and responsibilities										
Employee retention										
Logistics and supply chain										
Transport and delivery systems										
Supplies of goods and services										
Utility supply										
Communication network										
Businesses in the supply chain										
Operating markets										
Demand for goods/services										
Customers access to goods/services										
Alternative products/services										
Business reputation / image										
Competitiveness										
Financial situation of business										
Investment, loans										
Insurance										
Liabilities										
Statutory compliance										
Stakeholder reputation										
Production processes / services										
Disruptions to produce / offer services										
Productivity										
Cost										
Quality, product standards										
Time										