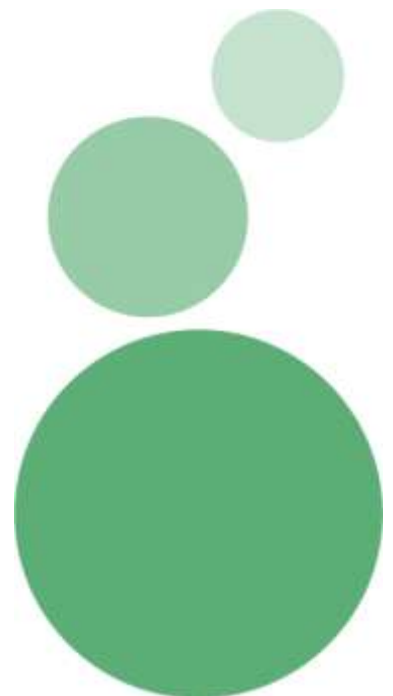For the Local Better Regulation
Office (LBRO)

Addressing national threats through
local service delivery: methods paper

15 July 2009

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1.0   Project aims and objectives

The Local Better Regulation Office (LBRO) is concerned that in some instances, the current system of local regulation may not sufficiently deal with some threats that have a national aspect. More specifically, the LBRO is concerned that "the current regulatory system may inhibit one local authority from providing a sufficient level of service to areas that benefit the whole (or a large part) of the nation, even when this is clearly in the interests of consumers and business".

The LBRO commissioned the Matrix Knowledge Group, supported by Kings College, London (KCL), to answer the following questions:

1. What is the nature of the problem?
2. What are the relevant national threats1- i.e. threats that may not be dealt with sufficiently through the current local regulatory system—that should concern LBRO?
3. How significant is each relevant national threat in the abstract (no intervention) case?
4. For selected threats:
    a. What interventions take place to address the threat?
    b. What costs are incurred and by whom in implementing these interventions?
    c. What benefits—in terms of risk reduction and mitigation—do the interventions bring and how are these distributed?
    d. What are the level, value, and distribution of 'residual risk' left after these interventions have been implemented?

1.1   Purpose of this report

This report addresses the first three questions above. Specifically, this report:

1. Describes the problem of potential discrepancy between costs and benefits associated with instances of local authority regulation.
2. Provides a long list of national-level threats that are relevant to the LBRO's objective of improving the system of local regulation;
3. Provides any evidence from secondary data (i.e., existing research or reports) of:
    a. costs to the UK if the threats are left unaddressed by regulation; and / or
    b. costs to the UK when the threats materialised; and
    b. Presents four threats for more detailed analysis.

This document is a methods paper that describes the methods used by Matrix and Kings College in conducting this project.

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[1] Threat is defined as an incident, or series of related incidents, likely to cause damage to the UK and / or its residents.

2.0   Method

The project consisted of:

- Part 1: identification and description of the national threats that are relevant to the LBRO's remit, and the potential impact on the UK if these threats are not addressed / if prevention fails.
- Part 2: assessment of the costs and benefits of interventions aimed at addressing four threats, including a detailed analysis of one of those threats.

This section outlines the methods adopted to deliver both parts.

2.1   Identifying and describing national threats

The method comprised:

- a literature review; and
- stakeholder interviews.

The goal of these was to:

- identify the national-level threats that are relevant to the LBRO's objective of improving the system of local regulation; and
- identify impacts of threats to the UK if prevention fails or if regulation does not take place.

2.1.1   Literature review

The literature review comprised three stages:

1. searching for key documents;
2. screening the available literature for relevance, using inclusion criteria which are clearly defined and set *a priori*; and
3. extracting data using standardised forms.

Searching of key documents

The searching of key documents took place in three waves:

Wave 1: Kings College Information Service undertook searches of electronic databases, using high level terms such as 'threat', 'risk' and 'impact' to identify key threat themes. The details of the databases included and search terms used are outlined in Appendix 1.

Wave 2: Kings College Information Service undertook a second search that comprised a more detailed search strategy focusing on specific areas identified as within the Local Authority Regulatory Service remit. The search terms were based on a combination of results from wave

1 and areas highlighted in the background reports. Appendix 1 provides details of the databases included and search terms used.

Wave 3: Kings College Information Service undertook a third strategy targeting areas, such as consumer protection, that had relatively few results from the first two waves. Appendix 1 outlines the details of the databases included and search terms used.

The review also included two waves of a search of grey literature (ie, literature that may be relevant but is not found easily through conventional searches of publications):

Wave 1: Matrix compiled a list of core documents based on:

- references used in the LBRO: Mapping the Local Authority Regulatory Services Landscape report; and
- discussions with LBRO's lead expert.

This process identified 24 documents.

Wave 2: Kings College information service undertook a grey literature search using:

- the Emergency Planning Centre Library (EPCL);
- internet search engines (eg, Google); and
- publications from the websites of relevant organisations.

Table 1 shows the number of abstracts identified from this search process.

Sources		No. of Hits
Electronic databases	1 st wave	539
	2nd wave	301
	3rd. wave	535
Grey literature	Core documents	24
	EPCL	41
	Website / Google	16
TOTAL		**1456**

Figure 1: Abstracts identified from electronic data base and grey literature search

Screening the available literature

The abstracts identified were read by two researchers from the Matrix team and assessed using the following inclusion criteria template:

Author	Data	Relevant threat to the UK	Discusses Impacts

Figure 2: Round 1 Abstract inclusion template

To be included the paper had to both focus on a threat relevant to the UK and had to discuss impacts. This process filtered the abstracts to 322 potential documents for review. Given the limited time and resources available, and to ensure a similar level of coverage across the different areas of threats, Matrix filtered the abstracts further using the following second round of inclusion criteria template:

Author	Data	Threat relevant to the project scope	Potential impact data	Potential data for analysis	Likely to suggest relevant scenarios for development of the long list

Figure 3: Round 2 Abstract inclusion template

To be included for document review, the paper had to score "Yes" for:

- "Threat relevant to the project scope";
- "Potential impact data";
- "Potential data for analysis"; and
- "Likely to suggest relevant scenarios for development of the long list".

Accordingly, papers were then graded 'high', 'medium' or 'low' priority. Papers that did not cover threats relevant to the project scope were categorised as low priority. The rest were graded based on whether they were likely to have useful data for modelling. This process identified 74 documents for retrieval and data extraction. A summary of the areas which these shortlisted abstracts cover is outlined Figure 4.

Threat area	Abstracts identified	High priority	Medium priority
Animal Health	119	19	18
Environmental pollution	79	19	28
Food safety	22	7	6
Consumer protection	45	14	14
Background regulatory activity	22	15	0
Total	**287**	**74**	**66**

Figure 4: Final shortlisted abstracts for data extraction

Extracting data using standardised forms

The data on abstract hazards, such as scenarios, descriptions, impacts, costs, and other salient findings, were extracted from each of the included studies using a standardised data extraction framework (see Appendix 2). The framework was designed to be as comprehensive as possible to serve two purposes:

1. populating the long list of threats (part 1 of the project); and
2. allowing for detailed analysis of the few chosen threats threat (part 2 of the project).

2.1.2   Engagement with stakeholders

Relevant stakeholders were engaged through:

- the creation of a project expert panel by LBRO; and
- a series of interviews.

Project expert panel

The LBRO convened a panel of experts to advise this project. The panel was comprised of:

- Paul Connolly, Serco Consulting (Lead Expert and Expert Panel Chair);
- Steve Greenfield, Chief Trading Standards Officer, Suffolk County Council;
- Kirsty Dawes, Association of Port Health Authorities;
- Sandra Westacott, Association of Port Health Authorities;
- Sarah Smith, Director of Delivery and Performance LBRO;
- Michael Gibson, LBRO Board Member;
- Graham Russell, CEO LBRO;
- Rachel Holloway, Better Regulation Executive;

The panel met four times over the course of the project.

Stakeholder interviews

Stakeholder interviews were conducted:

- to define relevant threats (Part 1);
- to fill any gaps in the long list of threat (Part 1); and
- to provide data for the detailed analysis of the chosen threats (Part 2).

Matrix, in consultation with the LBRO team, identified potential key national and local stakeholders to be interviewed.

Organisation
Safety of imported goods
Suffolk County Council Trading Standards (Felixstowe)
West Sussex County Council Trading Standards (Gatwick)
Thurrock Council Trading Standards (London Tilbury)
Southampton City Council
BERR
HMRC
LACORS

Organisation
B&Q
Imported contaminated food
Southampton PHA
London Borough of Hillingdon (Heathrow)
Suffolk Coastal DC PHA (Felixstowe)
FSA
Chartered Institute of Environmental Health
APHA
Spread of animal disease
North Yorkshire County Council
Bradford Council
Animal Health
DEFRA
LACORS
Mobile rogue builders/traders
Sandwell Borough Council
North Yorkshire County Council
Coventry City Council
LACORS
Scambusters / Surrey County Council
Trading Standards Institute / Derbyshire Trading Standards

The national stakeholders were interviewed using the standardised interview framework provided in Appendix 4.

2.2 Assessment of the costs and benefits of selected interventions

The purpose of this part of the project was to identify any discrepancies between local authorities that incur the costs of preventing, containing or mitigating threats, and those that benefit from such activity. This part involved:

1. selection of threats for the analysis, and
2. analysis of potential discrepancies between the local authorities that bear the costs and those that receive the benefits of local regulation.

The following section outlines the methods in each of these two stages.

2.2.1 Selection of threats for analysis

The selection of threats for analysis was arrived at through discussions with LBRO and members of the project expert panel help on 15th January 2009 at LBRO's office in Birmingham. A total of 13 scenarios involving national threats that are relevant to the LBRO objective of improving the system of local regulation were identified:

1. Air pollution
2. Importation of unsafe consumer goods
3. Importation of non-animal foodstuffs through ports of entry
4. Contamination of foodstuffs in the food chain
5. Spread of animal disease
6. Counterfeiting conducted or financing organised crime
7. Fall in confidence in local markets
8. Major incendiary outbreak
9. Catastrophes, such as flooding, that lead to 'all hands to the pumps'
10. Unfair trading practices that penalise consumers from a different location to where the practices occur
11. The role of primary authorities where one authority undertakes regulatory services on behalf of other authorities
12. Deliberate or unintentional shifting of costs from one area to another, such as failing to fully inspect a cruise liner, for example
13. The dispersal of people needing housing from one area to another

The selection procedure was based on the following five criteria with equal weights given to each:

1. **Qualification as a relevant national threat:** is the threat relevant in that it appears to involve a substantive (rather than trivial or uncertain) discrepancy between the local authority that incurs the costs of regulation and those that benefit? This criterion was assessed based on Matrix's judgement of the likelihood and size of such a discrepancy.

2. **The clarity of the candidate as an example of the discrepancy described above.** Some of the candidate threats are influenced by complicating factors that make the analysis and hence the implications less clear. For example, in some cases the responsibility for regulation was split between national and local agencies. We preferred clear examples.

3. **The expected size of the threat (ie, likelihood x impact):** this was to avoid analysis of trivial issues. We used secondary data to assess the approximate size of the threat.

4. **Ability to model the discrepancy:** We assessed accessibility and quality of primary and secondary data on:

   - the current cost of related regulatory activity;
   - the expected impact of the threat, assuming current level of regulatory activity; and
   - the estimated impact of the threat assuming no regulatory activity occurs. This counterfactual is needed to estimate the benefit accruing from the regulatory activity to the Local Authority that conducts the activity plus other Local Authorities.

5. **The level of stakeholder interest.** As the project is meant to raise issues that are of importance to local and national regulators, it was important to include stakeholder interest as a criterion for selecting the examples for further analysis.

These criteria led to the selection of four threats for further analysis:

1. The importation of unsafe consumer goods into the UK.
2. The importation of contaminated food into the UK.
3. The spread of animal disease, in particular swine fever.
4. Doorstep sales by mobile rogue builders/traders.

Because of difficulties in getting sufficiently robust data, we built a full cost-benefit model only for the first of the four threats. For the other three threats we provided conceptual cost-benefit models and identified what additional data is needed to complete the models.

2.2.2   Analysis of discrepancies between the costs and benefits

Approach

A relevant threat is where there is a discrepancy between who bears the *cost of prevention, containment, or mitigation* and who receives the *benefits from reduction in likelihood or impact* of the threat.

This discrepancy is a cause of insufficient regulation if two conditions hold:

Condition 1: For the local authority charged with preventing, containing or mitigating the threat from occurring or spreading to other authorities the <u>cost</u> of these activities exceeds the <u>expected benefit</u> (for that and other local authorities combined) from these activities. The

expected benefit of regulatory activities equals the difference between the <u>expected impact</u> of the threat given current levels of regulatory activity, and <u>estimated impact</u> of the threat if a different level of regulatory activity takes place. We refer to the latter as the counterfactual scenario.

Condition 2: Increasing the level of regulatory activity is likely to reduce the probability or the impact of the threat or both. If increased regulation will not reduce the threat or probability, there is no risk of insufficient regulation.

To identify the potential for any discrepancy we collected and reviewed data for particular local authorities for each particular threat selected. In other words, *for each threat selected we identified a specific instance of the threat in a specific local authority*. This specific instance was used to build the model. We refer to these specific instances as case studies. The issue of generalising from the case studies to the UK as a whole is addressed below under **Model building** below**.**

Model calculation

Mathematically we can characterise condition 1 as a case where:

$$Cr > \{E(I_u) - E(I_r)\}$$

where:

Cr = the costs of regulatory activity for prevention, containment, or mitigation of a particular threat for a particular local authority (ie, the costs of the case study)

$E(I_u) =$ the estimated expected impact on all local authorities of the threat materialising when there is no regulatory activity, which in turn is a function of the likelihood of the threat materialising and its impact

$E(I_r) =$ the estimated expected impact on all local authorities of the threat materialising given the currently levels of regulatory activity, which in turn is a function of the likelihood of the threat materialising and its impact

The benefit of the regulatory activity is the difference between the two expected impacts, one with the current level of regulatory activity and one with a higher or lower level.

By separating the costs and estimated impacts for the local authority that conducts the regulatory activity (LA1) from all other local authorities (other local authorities) we can determine where there are discrepancies. If we compare the costs and benefits from conducting the current level of regulation compared to doing no regulation, there are five outcomes:

1. **Costs for LA1 are <u>less than</u> the benefits for LA1 (or $C_{LA1} < B_{LA1}$).** This implies that the local authority is at risk of insufficient regulation even considering its own interests

and ignoring those of other local authorities. Note the level of regulation is not *necessarily* insufficient for the reason given below.

2. **Costs for LA1 are <u>equal to </u>the benefits for LA1 (or C_{LA1} = B_{LA1}).**

3. **Costs for LA1 are greater than the benefits for LA1, but less than the benefits for all LAs (BLA1 < CLA1 < (BLA1 + Bother LAs)).** This implies that:

   a. there is a risk that the local authority is spending more than it should on regulation considering only its own interests, but there is also a risk of insufficient regulation from national perspective (ie, other local authorities); or
   b. the local authority is internalising the benefits for other local authorities in allocating resources to regulation, though possibly not enough.

4. **Costs for LA1 equal the benefits for all LAs (C_{LA1} = (B_{LA1} + B_{other LAs})).**

5. **Costs for LA1 are <u>greater than</u> the benefits for all LAs ((B_{LA1} + B_{other LAs}) < C_{LA1}).** This implies that the local authority is providing more regulatory services than optimal even considering the benefits that accrue to all local authorities.

This comparison of the change in costs and benefits that occur when moving from no regulation to the current level of regulation does not include an estimate of the costs and impact of *additional* regulation. Hence outcomes 1, 2, and 3 do not necessarily reflect a case of insufficient regulation. That would take an analysis of what would happen if more regulation occurs.

Note the analysis does <u>not</u> include the distribution of costs and benefits across different agencies within local authorities and among relevant national organisations.

Data collection

There were three categories of data required for the analysis:

1. the current cost of regulation;
2. the expected impact of the threat based on current level of regulation, which in turn is the product of:
   - the likelihood of the threat being manifested; and
   - the impact of the threat on the local authority, local business and residents, and the impact on other local authorities; and
3. the estimated impact of the threat based on counterfactual (ie, scenario of no regulation), which again is the product of:
   - the likelihood of the threat being manifested when no regulatory service is provided; and
   - the impact of the threat on the local authority, local business and residents, and the impact on other local authorities.

Each category is made up of several different elements. For example, the impacts of a threat will be made up of:

1. direct impacts to the local authority itself, such as mitigation costs (eg, staff overtime);
2. direct impacts to local businesses, such as mitigation costs (culling farm animals); and
3. indirect impacts experienced by local authority residents and businesses, such as decreased tourism, etc.

To separate out the costs and benefits that fall to different local authorities, we distinguished between costs and impacts experienced by the case study local authority and other local authorities.

For the first two data elements (ie, costs of regulatory services and the expected impact of those services) we used a combination of two approaches to collecting the data:

1. locally-provided data collected on visits to each case study to:
   a. estimate the cost of providing regulatory services in the case study;
   b. estimate the probability and impact of the threat to that authority and the businesses and residents of the authority.
   c. extrapolate the estimate of the impacts to other local authorities based.
2. secondary data resulting from the literature review to:
   a. apportion the national costs of providing regulatory services to the case study and other local authorities;
   b. apportion the impacts of the threat to all local authorities, including the case study authority.

We used the most robust data from each of these sources to populate the model.

To estimate the impact of the threat based on the counterfactual we made estimates based on the primary and secondary data collected, and validated our estimates with the advisory group and other experts. This element of the model was the most difficult to provide robust evidence for.

The choice of case studies was based on:

- clarity of the instances of the threat;
- suitability for extrapolation to other local authorities (ie, we did not select unusual examples unless they are unusual because they are a significant part of the national scene);
- availability and quality of the data; and
- willingness to participate in the analysis and provide data.

To collect the data we:

- made contact with the local authority initially through the LBRO;
- had a telephone consultation with the local authority representative to discuss the project, the analysis, the information sought, and plans for a site visit;
- conducted a site visit for three of the four threats. At the site visit we interviewed relevant staff, including managerial staff as well as front-line staff. The purpose of these was to:
  - o understand the threat and how it gets played out in practice;
  - o collect the relevant data—see above—to the extent possible and /or get contact information of people who can provide the data; and
  - o collect opinions on reasonable estimates, for example of the likelihood of threats occurring in the absence of regulation.

We followed up these site visits with phone calls and e-mails to collect further data, seek clarification, and test the reasonableness of estimates and assumptions we need to make in the modelling.

Model building

We built the cost—benefit model for the threat of importing unsafe goods using MS Excel.

As described above, the analysis was for specific instances of the threat, namely the importing of goods through Felixstowe. But for each case study there are several comparable situations in the UK. We assess how best to extrapolate to the entire UK, as well as the limits of doing this, on a case-by-case basis as the nature of the threats and the case studies were very different from each other in this regard.

The model provided an estimate of the impact of the threats even with the regulatory activity. This is defined as the residual level of threat.

3.0   Appendix 1: Data bases and search terms

Wave 1

Database	Result code	Search terms
BL Direct	BLD1	(Local govern* or local authorit*) and emergency planning (Local govern* or local authorit*) and risk* and regulat* (Local govern* or local authorit*) and regulat and emergenc* and plann*
	BLD2	(agriculture or fertilizer$ or animal$ or (foot and mouth)) and regulat$ and (local authorit$ or local govern$) (Consumer protection or business$ or credit or fair trad$ or rogue trade$ or ("weights and measures"))and regulat$ and (local authorit$ or local govern$)
	BLD3	(emergenc$ or threat$) and risk$ and (local authorit$ or local govern$) (emergenc$ or threat$) and regulat$ and (local authorit$ or local govern$)
Planex	PLX1	(Local govern* or local authorit*) and emergency planning(Local govern* or local authorit*) and risk* and regulat* (Local govern* or local authorit*) and regulat and emergenc* and plann*
	PLX2	(Consumer protection or business* or credit or fair trad* or rogue trade* or ("weights and measures")) and regulat* and (local authorit* or local govern*)
	PLX3	("foot and mouth" or BSE) and (impact or effect*)
	PLX4	("foot and mouth") and (impact or effect*)
EPC Library	EPC1	No search facility
	EPC2	No search facility
Urbadoc	URB1	(emergency planning or fire safety) and (regulat* or risk*)
	URB2	CONSUMER PROTECTION OR FAIR TRAD$ OR PRODUCT SAFETY OR ROGUE TRADE$) AND REGULAT$ Emergency planning and regulation (Emergenc$ or threat$ or disaster$) and regulat$
	URB3	Licensing
	URB4	Licensing
	URB5	Licensing
	URB6	foot and mouth" or BSE) and (impact or cost or effect*)
Medline, Embase and HMIC (searched through ASSIA)	CSA1	(threat* or disaster*) and regulat* and ("local government" or "local authorities" or "public sector")(emergency or emergencies)and regulat* and ("local authorities" or "public sector")government" or "local

Database	Result code	Search terms
BL Catalogue	BLC1	emergency planning and (local government or local authorities) and *emergency planning and regulation*
RAND	RND1	*emergency planning and public sector*
Engineering Village	EV1	emergency planning and regulation and (local government or local authorities or public sector)
	EV2	1st Search strategy: emergency and (planning or management) and regulation and (local government or local authorities or public sector) 2nd search strategy: (emergency planning or disasters or risks) and regulation and (local government or local authorities or public sector)
	EV3	(emergency and (planning or management)) and regulation and (cost* or effective* or economic)
AGEcon	AGC1	foot and mouth" or BSE) and (impact or cost or effect*)

Wave 2

Database	Result code	Search terms
EconLit	ECO1	Simple search strategy - FMD
	ECO2	Query: kw: BSE
	ECO3	Avian flu, Query: kw: avian
	ECO4	Query: kw: avian
	ECO5	Query: kw: tularaemia or kw: plague or kw: botulism or kw: salmonella
	ECO6	Query: kw: e w coli or kw: tuberculosis or kw: diptheria or kw: hepititus or kw: rubella or kw: SARS
BL Direct	BLD1	(tuberculos$ or botulis$ or "foot and mouth" or anthrax or BSE or salmonella) and impact and economic$ (tuberculos$ or botulis$ or "foot and mouth" or anthrax or BSE or salmonella) and threat$
Agris	AGR1	> Search for: ((tuberculos* or botulism* or "foot and mouth" or anthrax > or avian flu or rubella or SARS or BSE or salmonella) and (threat* or > impact*)).mp. [mp=abstract (other languages), abstract (english), > computer-assigned descriptors (english), identifiers (english), > abstract (francais), computer-assigned descriptors (francais), > identifiers (francais), indexer-assigned descriptors (francais), > heading word, indexer-assigned descriptors (english), > computer-assigned descriptors (espanol), identifiers (other > languages), abstract (espanol), identifiers (espanol), > indexer-assigned descriptors (espanol), title]
AGEcon	AGE1	(tuberculos* OR botulism* OR "Bovine TB"OR anthrax OR

Database	Result code	Search terms
		avian flu OR rubella OR SARS OR BSE OR salmonella) AND (threat* OR impact*)
Medline, Embase and HMIC	CSA1	> 1 ((tuberculos* or botulism* or diphtheria or hepitit* or anthrax or > avian flu or rubella or SARS or BSE or salmonella) and (threat* or > impact*)).mp. [mp=ti, ot, ab, hw, sh, tn, dm, mf, nm] (10499) > 2 (animal disease* and threat*).mp. [mp=ti, ot, ab, hw, sh, tn, dm, > mf, nm] (194) > 3 ("united Kingdom" or england or wales or scotland or ireland).mp. > [mp=ti, ot, ab, hw, sh, tn, dm, mf, nm] (442569)
Total		

Wave 3

Database	Result code	Search terms
BL Direct set: *United Kingdom or england or wales or scotland or ireland*	BLD1	(pathogen$ or "e coli" or mrsa or "food poison$" or contamina$) and (threat$ or impact$) and (United Kingdom or england or wales or scotland or ireland)
	BLD2	(water supply or run off or food chain or air quality) and (threat$ or impact$) and (United Kingdom or england or wales or scotland or ireland)
	BLD3	consumer protection or illegal goods or counterfeit goods or dangerous goods or faulty goods or "sale of goods"
	BLD4	(contamina$ or pollut$) and (threat$ or impact$) and (United Kingdom or england or wales or scotland or ireland)
	BLD5	(pollut$ or Contaminat$) and food chain and impact
National Criminal Justice Reference Service	NCJ1	(((Goods and (illegal or counterfeit or substandard or dangerous or faulty) or scam$ or forger$ or rogue trade$ or fraud or deception or loan shark$ or lone trad$)) and (impact$ or risk$ or effect$)) not (law or computer$ or internet or legal$)
	NCJ2	Consumer protection
Planex	PLA1	(((Goods and (illegal or counterfeit or substandard or dangerous or faulty) or scam$ or forger$ or rogue trade$ or fraud or deception or loan shark$ or lone trad$)) and (impact$ or risk$ or effect$) 2005-2009
	PLA2	(((Goods and (illegal or counterfeit or substandard or dangerous or faulty) or scam$ or forger$ or rogue trade$ or

Database	Result code	Search terms
		fraud or deception or loan shark$ or lone trad$)) and (impact$ or risk$ or effect$) 2000-2004
	PLA3	(((Goods and (illegal or counterfeit or substandard or dangerous or faulty) or scam$ or forger$ or rogue trade$ or fraud or deception or loan shark$ or lone trad$)) and (impact$ or risk$ or effect$) 1980-1999
	PLA4	"food safety" and threat*
	PLA5	(1) "food safety" and threat* (2)(contamina* or pollut*) and threat*
	PLA6	(((Goods and (illegal or counterfeit or substandard or dangerous or faulty) or scam$ or forger$ or rogue trade$ or fraud or deception or loan shark$ or lone trad$)))
	PLA7	(((Goods and (illegal or counterfeit or substandard or dangerous or faulty) or scam$ or forger$ or rogue trade$ or fraud or deception or loan shark$ or lone trad$)))
Urbadoc	URB1	((Goods and (illegal or counterfeit or substandard or dangerous or faulty) or scam$ or forger$ or rogue trade$ or fraud or deception or loan shark$ or lone trad$)) and (impact$ or risk$ or effect$)
	URB2	((Goods and (illegal or counterfeit or substandard or dangerous or faulty) or scam$ or forger$ or rogue trade$ or fraud or deception or loan shark$ or lone trad$)) and (impact$ or risk$ or effect$)
	URB3	(contamina$ or pollut$) and threat$
PAIS	PAI1	goods and (illegal or counterfeit or substandard or dangerous or faulty) or scam* or forger* or rogue trade* or deception or loan shark* or lone trade* Your Comments: Search result from PAIS International 1980-2009.
	PAI2	(goods and (illegal or counterfeit or substandard or dangerous or faulty) or scam* or forger* or rogue trade* or deception or loan shark* or lone trade*) and (threat* or impact* or effect*) Your Comments: Scams etc PAIS 1980-2009.
	PAI3	(contamina* or pollut*) and threat*
	PAI4	food safety and threat*
Pollution Abstracts, Aqualine; Risk Abstracts	PAR1	food safety and threat*
Pollution	PAB1	((contamina* or pollut*) and threat*) and (united kingdom or

Database	Result code	Search terms
Abstracts		england or wales or scotland or london)
National Police Improvement Agency (NPIA)	NPA1	Keywords: Illegal, counterfeit, faulty, substandard, dangerous, faulty, scam forger$, rogue trad$, fraud, deception, loan shark$, lone trad$
Google	GGL1	(((Goods and (illegal or counterfeit or substandard or dangerous or faulty) or scam$ or forger$ or rogue trade$ or fraud or deception or loan shark$ or lone trad$)) and (impact$ or risk$ or effect$) and (united kingdom or wales or Scotland or England or London)) not (law or legal$) references selected from over 1million hits
	GGL2	((Goods and (illegal or counterfeit or substandard or dangerous or faulty) or scam$ or forger$ or "rogue trade$" or fraud or deception or "loan shark$" or "doorstep selling" or "lone trad$")) and (impact$ or hazard$ or risk$ or effect$ or threat$)
British Library Catalogue	BLC1	(1)(((Goods and (illegal or counterfeit or substandard or dangerous or faulty) or scam$ or forger$ or rogue trade$ or fraud or deception or loan shark$ or lone trad$)) and (impact$ or risk$ or effect$) and (united kingdom or wales or Scotland or England or London)) not (law or legal$) (2) (contamina$ or pollut$) and threat$ (3) (pathogen$ or "e coli" or mrsa or "food poison$" or contamina$) and (threat$ or impact$) and (United Kingdom or england or wales or scotland or ireland or london)

4.0   Appendix 2: Data extraction framework

Author (year):
Title:

Background information:

1. Identifying and describing the threats	
What is the abstract threat?	
Which category is the threat concerned with (Check below for details)?	
What are the conditions under which the abstract threat is realised?	
Who is responsible to regulate the threat?	
Who is responsible to mitigate the threat?	
What is the history of these threats, against which the regulation can be assessed (For e.g., number of occurrence since 1950, etc.)? Put 'Unclear' if not clearly stated.	
Where is the threat considered? County/ies & exact location if stated	
Any other comments	
2. Negative Impacts of threats	
What are the impacts (qualitative and quantitative) to the UK if the threats are left unaddressed by regulation? Discuss the sectors on which the impacts are felt. For instance, the business community, trade unions, etc.	
What are the impacts (qualitative and quantitative) to the UK when prevention (regulation) fails? Discuss the sectors on which the impacts are felt. For instance, the business community, trade unions, etc.	
What are the impacts (qualitative and quantitative) to the UK when mitigation (regulation) fails? Discuss the sectors on which the impacts are felt. For instance, the business community, trade unions, etc.	
Any other comments	
3. Regulatory approach	
Is there any regulatory approach (types of interventions) to prevent the threat? Provide a description of the regulatory approach if changed over time.	

Is there any regulatory approach to mitigate the threats?	
Is there any description of the level of discrepancy between who carries the costs of regulation and who benefits from it?	
What is the cost of regulation in preventing the threat? Discuss both the qualitative and quantitative costs associated with the regulation.	
What is the cost of regulation in mitigating the threat? Discuss both the qualitative and quantitative costs associated with the regulation.	
Who is responsible in bearing the costs of the regulation? E.g. local bodies, national bodies, etc.	
Any other comments	
4. Impacts (Positive and Negative) of regulation	
What are the expected impacts (both qualitative and quantitative) of regulation in preventing the threat? For instance, reduced probability of occurring, reduced impacts, reduced costs, etc).	
What are the impacts (both qualitative and quantitative) of regulation in mitigating the threat? For instance, reduced probability of occurring, reduced impacts, reduced costs, etc)..	
Any other comments	
5. Risks	
What is the probability of occurrence of threat without regulation?	
What is the probability of occurrence of threat with regulation?	
What is the probability of occurrence of impacts without intervention? *Put 'unclear' if not clearly stated.*	
What is the probability of occurrence of impacts with intervention? *Put 'unclear' if not clearly stated.*	
Any other comments	
6. Methodology of the study	
Study type: Experimental/ Single case study/ Survey/ other	
Do the study authors describe how data was collected? *Interviews, focus groups etc. Describe the process in authors' own words if possible.*	
What means were used to ensure reliability & validity of data collection? *E.g. piloting / consulting on data collection tool; use*	

of standardised protocols; etc. Also: do authors discuss potential threats to reliability / validity or means to avoid bias?	
Do the study authors describe how data was analysed? *E.g. thematic analysis, framework analysis*	
What means were used to ensure reliability & validity of data analysis? *E.g. analysis by multiple researchers; confirming findings with participants; etc. Also: do authors discuss potential threats to reliability / validity or means to avoid bias?*	
Any other comments	

5.0   Appendix 3: Interview Tool

Thank you for agreeing to participate in this interview.

The interview is part of Matrix Knowledge Group's analysis of the issues that face local authorities in addressing national threats through the delivery of local regulatory services. This project has been commissioned on behalf of the Local Better Regulation Office (LBRO).

The LBRO is concerned that for some national threats the delivery of regulatory services by local authorities may not be optimal because of potential discrepancies between who bears the costs of such activities and who receives the benefits. The following are examples where this might occur:

- local efforts to stop or limit the sale of illegal goods may simply displace such sales to other areas;
- local regulation of the safety of products made in one place but distributed nationally may be inefficient as most authorities will not have jurisdiction over the source; and
- the threat of air pollution by some installations might receive insufficient attention from the relevant authority if, because of prevailing winds, the pollution primarily affects neighbouring authorities.

The interview is aimed at collecting information on the different types and seriousness of such issues. The LBRO will use the results of the study to identify possible ways to reduce any negative impacts resulting from these sorts of issues on local authorities, regions, and the UK as a whole.

The information that you give us will not be presented or published in any way that would enable anybody to link anything you say directly e.g. through the inclusion of literal quotes in the report. However, a list of interviewees is likely to be included as an appendix to the final report.

Do you have any questions?
Are you happy to continue with the interview?

Questions

1. What is your role and responsibility with regards to the delivery of local regulatory services? What areas does your role cover? What national agencies or organisations do you have most contact with and how?

2. What factors (eg, local priorities, national priorities, regulations, recent events, concerns of the local population, etc.) determine the time and resources spent on the regulation of different types of threats that are relevant to your role?

3. In what ways does the current regulatory scheme—such as the division of local and central government responsibilities, or the provision of funding and expert advice help and / or hinder the delivery of local regulatory services?

4. Specifically, are there any threats that you believe not addressed well through the current system of local regulation (ie, are the examples given above important or can you think of other examples)? Which of these are most important, and why?

5. From your perspective, what would be the advantages and disadvantages of other ways of regulating for national threats relevant to your area (eg, changing the local / central government responsibilities for regulation, developing regional approaches to regulating some threats, promoting more collaboration among local authorities)?

6. Do you have any recommendations or suggestions on changes that could or should be made to the delivery of local regulatory services?

We have now come to the end of the interview. Thank you for giving your time to participate in our research.

Should you have any further questions or comments please feel free to contact me, or the LBRO project manager, Ffiona Kyte.