Management of the public health risks associated with cloth materials in Western Australia

In accordance with the *Public Health Act 2016* regulatory framework

July 2018
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Disclaimer
The views expressed in this document may not, in any circumstances, be interpreted as stating an official position of the Department of Health.

This document is intended to serve as the basis for further discussion with interested stakeholders.
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How to make a submission

The Department of Health (DoH) is seeking feedback on the proposed reforms for the management of public health risks associated with cloth materials.

The DoH is seeking ideas, suggestions and comments on the proposed options.

You are invited to read through the following paper and provide feedback through one of the methods below:

- Completing the online survey
- Filling in the form found at the back and sending it to the DoH by either email or post as per the contact details below.

Guiding questions

This document contains a series of questions related to the proposal. You do not have to comment on all the questions, and can focus on those areas that are important to you.

You are welcome to provide additional feedback that may not be related to any of the questions.

Please explain the reasons behind your suggestions, and where possible evidence to support your views (such as statistics), estimates of any costs that may relate to the proposal, and examples of solutions.

Where to send your submissions

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Email:</td>
<td><a href="mailto:publichealthact@health.wa.gov.au">publichealthact@health.wa.gov.au</a></td>
</tr>
<tr>
<td>Post:</td>
<td>Cloth materials</td>
</tr>
<tr>
<td></td>
<td>Regulation review submission</td>
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<td></td>
<td>Science and Policy Unit</td>
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<td></td>
<td>Environmental Health Directorate</td>
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<td>Department of Health</td>
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<td>PO Box 8172</td>
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<td>Perth Business Centre, WA 6849</td>
</tr>
</tbody>
</table>

Submissions close

The closing date for submissions is 14 September 2018
## Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>Australian Capital Territory</td>
</tr>
<tr>
<td>AO</td>
<td>Authorised Officer</td>
</tr>
<tr>
<td>DoH</td>
<td>Department of Health</td>
</tr>
<tr>
<td>MRSA</td>
<td>Methicillin-resistant <em>Staphylococcus aureus</em></td>
</tr>
<tr>
<td>NSW</td>
<td>New South Wales</td>
</tr>
<tr>
<td>NT</td>
<td>Northern Territory</td>
</tr>
<tr>
<td>PHARG</td>
<td>Public Health Act Reference Group</td>
</tr>
<tr>
<td>QLD</td>
<td>Queensland</td>
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<tr>
<td>SA</td>
<td>South Australia</td>
</tr>
<tr>
<td>TAS</td>
<td>Tasmania</td>
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<tr>
<td>VIC</td>
<td>Victoria</td>
</tr>
<tr>
<td>WA</td>
<td>Western Australia</td>
</tr>
</tbody>
</table>
Executive summary

The key focus of this review is to obtain stakeholder feedback on the most effective option for the management of public health risks associated with cloth materials in Western Australia (WA). This document analyses the various options for managing the public health risks associated with cloth materials, including the potential advantages (benefits) and disadvantages (costs) of each option for industry, small business, consumers and local and state government.

This paper discusses the current management of cloth materials under the Health (Cloth Materials) Regulations 1985 (WA). Other than minor changes to terminology, these regulations have not been amended since their introduction.

As a result of the implementation of the Public Health Act 2016 (WA) all regulations that currently sit under the Health (Miscellaneous Provisions) Act 1911, including the Health (Cloth Materials) Regulations 1985, must now be reviewed and either repealed or replaced with new regulations in accordance with the new regulatory framework.

The Health (Cloth Materials) Regulations 1985 are over 30 years old and if regulation is considered the preferred option, the existing regulations appear to require significant changes to align with the new regulatory framework of the Public Health Act 2016.

This paper has considered a number of options for the future management of cloth materials in WA including:

- **Option A** – Retain the status quo, that is, replicate the current regulatory system as much as possible.

- **Option B** – Repeal the regulations and provide guidance notes. This is the DoH’s preferred option.

- **Option C** – Replace with new, modernised regulations.
1 Aim
This discussion paper will focus on determining the appropriate option for managing the public health risks associated with cloth materials in WA.

This paper assesses the public health risks, reviews the current management of those risks and looks at options for future management of risks associated with cloth materials.

2 Introduction
The implementation of the Public Health Act 2016 requires all environmental health regulations made under the Health (Miscellaneous Provisions) Act 1911 to be reviewed and then repealed or replaced with regulations created under the regulatory framework provided by the new Act.

The Environmental Health Directorate of the DoH proposes to consolidate the existing 22 environmental health related regulations into a streamlined and manageable number of regulations.

This paper will only focus on the management of public health risks associated with cloth materials in WA.

Once fully implemented, the Public Health Act 2016 will have a number of ways to deal with public health risk management and offences (see Appendix 1 – Regulatory mechanisms under the Public Health Act 2016). These include:

1. The general public health duty
2. Infringement notices
3. Improvement notices and enforcement orders
4. Prosecution; and
5. Registration and licensing.

Regulations can adopt codes and any subsidiary legislation made, determined or issued under a WA Act or under any Act of the Commonwealth, another State or Territory. Section 304 of the Public Health Act 2016 also outlines a range of general powers in the making of a regulation.

The Public Health Act 2016 also enables local government enforcement agencies to recover fees or charges in respect of their performance of functions under the Act and regulations. Such fees or charges are to be imposed and recovered in accordance with the framework provided by Part 6 Division 5 Subdivision 2 of the Local Government Act 1995 (WA).

This paper will review the available evidence and outline options for managing public health risks associated with cloth materials. If the option of making new regulations is considered to be the most effective control measure necessary to manage these risks, it is proposed that regulations would be created under the new framework of the Public Health Act 2016.
3 Public health risks from cloth materials

| What is a public health risk? | A risk to public health is something that is known to cause or potentially cause disease or harm to the public health or wellbeing of humans. |

Overview

The *Health (Cloth Materials) Regulations 1985* encapsulate a variety of materials that may present a fomite transmission of disease. Materials include, but are not limited to the hire of/sale of second-hand items such as:

- clothing and costumes
- carpets and other soft floor coverings
- footwear including shoes (e.g. bowling shoes), ice skates, boots etc.
- head coverings including hats and headgear (e.g. helmets, hard hats)
- bedding and similar items including mattresses, pillows, upholstery and cushions
- wigs.

Disease and/or infestation that may be transmitted by such cloth materials include:

- bacteria (e.g. Methicillin-resistant *Staphylococcus aureus* (MRSA), *Clostridium difficile*, *Salmonella*)
- bed bugs
- body lice
- fleas
- fungus (tinea)
- pin worm
- scabies
- viruses (e.g. norovirus, influenza).

The regulations prescribe various methods of cleaning and disinfection for each type of material. For example, clothes are to be washed in hot soapy water or dry cleaned and floor coverings washed with soap or suitable detergent or dry cleaned. Footwear is to be visibly clean, and sprayed or wiped with a disinfectant and a deodorant.

Many of the prescribed cleaning techniques are vague and/or outdated.

Risk factors

Unsafe sanitation will increase the risk of all listed diseases and infestations.

People in lower socioeconomic areas are more likely to buy second-hand goods at a reduced cost. They may then have more exposure to contaminated items.

Symptoms

Table 1 Disease symptoms via fomite transmission lists some of the infections and diseases that may be transmitted to humans through cloth materials.
Table 1 Disease symptoms via fomite transmission

<table>
<thead>
<tr>
<th>Disease</th>
<th>Description</th>
<th>Symptoms</th>
<th>How is it spread?</th>
</tr>
</thead>
</table>
| bacteria      | MRSA is a contagious and antibiotic-resistant bacteria also known as staph or golden staph. | The symptoms that develop with MRSA infection are common signs of local skin infection, such as:  
  - redness  
  - swelling  
  - pain  
  - heat  
  - the presence of pus.  
   
  Some skin infections will develop into more serious infections like boils or deep abscesses.  
   
  In some cases MRSA can enter the bloodstream, from either an existing infection such as a wound or abscess or from a medical device such as an intravenous catheter. Symptoms can include high fever, shaking and low blood pressure. This can be a life-threatening illness and requires urgent medical treatment.  
  MRSA can get into the body through broken skin or sores, resulting in redness, pimples, swelling, tenderness or boils. Infections can become serious leading to blood infections or pneumonia.  
  Cuts or abrasions, contact with contaminated items and surfaces (e.g. sheets, towels and door handles), and infrequent washing increase the risk of infection.  
  MRSA can remain on contaminated items such as towels and blankets for months. |                                                                                                      |
| MRSA          |                                                                                   |                                                                                                                                                    |                                                                                                      |
| Salmonella    | The most common symptoms are diarrhoea, fever, abdominal cramps and vomiting.   |                                                                                                                                                    | Transmitted from contaminated food or via poor hygiene from sick persons.  
   
  Can only survive a few hours on hard surfaces or fabrics. |                                                                                                      |
| bed bugs      | Bed bugs are small parasitic insects that feed on human blood by piercing the skin. They do not live on humans or burrow into the skin.  
  Generally, bed bugs are more of a nuisance pest than a serious health threat. There is no evidence to indicate that they transmit any infectious disease.  
  Bed bugs can live up to six months at room temperature and can survive for long periods without a blood meal. | Don’t transmit disease but bites can be red, itchy and painful.  
  Some people will not experience a reaction to a bed bug bite at all. Those that do experience symptoms of a bite are likely to experience one or more of the following:  
  - a bite with a red, swollen area and a dark red centre  
  - bites in a line or grouped together in a small area  
  - blisters or hives at the bite site. | Bed bugs can survive for more than a year without feeding, which enables them to hide out waiting for hosts in furniture, mattresses, bedding and clothing. They can also survive temperatures as varied as freezing to 113 degrees. This trait enables them to survive transportation more easily than ever, hitching a ride on second-hand items. |
Management of the public health risks associated with cloth materials in Western Australia

<table>
<thead>
<tr>
<th><strong>fleas</strong></th>
<th>A flea is a very small, flat bodied insect that feeds on blood (cats, dogs and humans). In Australia, fleas are not known to transmit any human diseases, although this does occur in other parts of the world.</th>
<th>Skin reactions to flea bites can appear within minutes or may be delayed over hours and even days. People who are allergic to flea bites can develop lesions, itching or other symptoms.</th>
<th>In the early stages of development, fleas can stay in carpets or undisturbed edges of floors for up to 1 year.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>fungus (tinea)</strong></td>
<td>Tinea is a very common fungal infection of the skin. Infections can develop on many areas of the body including feet (athlete's foot), nails, body and scalp.</td>
<td>Tinea is often called &quot;ringworm&quot; because the rash is circular, with a ring-like appearance. Symptoms can include itching, stinging and burning and cracking when on the skin.</td>
<td>Can be transmitted through contaminated clothing, footwear and hard surfaces.</td>
</tr>
</tbody>
</table>
| **lice** | Lice are parasitic insects that feed on human blood and can infest the head, body, and pubic area. Generally they are more of a nuisance and transmission of uncommon bacterial diseases is rare. | Common symptoms of a body lice infestation include:  
- intense itching (pruritus)  
- rash caused by an allergic reaction to body lice bites  
- red bumps on the skin. | Infestations occur worldwide and are spread via close person-to-person contact or through commonly shared bed linens, towels and clothing. In general, infestations of body lice are limited to people who live in unhygienic or crowded living conditions and who don’t have access to clean clothing. |
| **pin worm (threadworm)** | A small thin worm that lives in the colon and rectum of humans and can deposit eggs on the outside of the skin. | Pin worm causes itching around the anus which can lead to difficulty sleeping and restlessness. Symptoms are caused by the female pin worm laying her eggs. Symptoms of pin worm infection usually are mild and some infected people have no symptoms. | Pin worm infection is spread by the transfer of infective pinworm eggs from the anus to someone’s mouth, either directly by hand or indirectly through contaminated clothing, bedding, food, or other articles. |
|  |  | Common symptoms of head lice infestation include scalp itchiness and presence of eggs and hatchlings in the hair. | Head lice are spread by head-to-head contact with another person who has head lice. Head lice are not spread through bed linen, clothing or head gear (hats and helmets) as they do not leave the scalp unless they are moving to another scalp, or if they are dead or dying. |
| **scabies** | A contagious skin infestation by the mite *Sarcoptes scabiei*. The mites burrow into the skin to live and lay eggs. |
| **viruses (norovirus, influenza)** | A virus is a small, infectious agent that replicates only inside the living cells of other organisms. Common viruses that affect humans and may be transmitted by cloth materials include norovirus and influenza. |

| Scabies | The symptoms are due to an allergic reaction to the mites. Common symptoms are severe itchiness and a pimple-like rash. Occasionally, tiny burrows may be seen in the skin. |
| Norovirus infection | Norovirus infection is characterized by diarrhoea, vomiting, and stomach pain. |
| Influenza | Influenza - symptoms can include fever, cough and cold symptoms, aches and pains, fatigue. |

| Scabies is most often spread during a relatively long period of direct skin contact with an infected person (at least 10 minutes). | Less commonly, scabies infestation can happen through the sharing of clothes, towels, and bedding, but this is not a major mode of transmission. Individual mites can only survive for two to three days, at most, away from human skin at room temperature. |
| The norovirus is usually spread by the faecal–oral route. This may be by contaminated food or water or person-to-person contact. It may also spread via contaminated surfaces or through the air. Norovirus can survive for weeks on hard surfaces. | The influenza virus can survive for up to 24hrs on hard surfaces. |
Management of the public health risks associated with cloth materials in Western Australia

**Numbers of cases of the disease in WA**

There is little available data on many of the infections and diseases listed above as the majority are not notifiable diseases.

**Table 2 Number of cases and risk factors of the disease in WA**

<table>
<thead>
<tr>
<th>Disease</th>
<th>Who is at risk?</th>
<th>Data</th>
</tr>
</thead>
</table>
| **Bacteria – MRSA** | Anyone  
People who have health problems such as diabetes or a poor immune system or who have broken skin due to wounds, or dermatitis are also more likely to get an infection  
Highest risk are people in nursing homes and hospitals | Is a notifiable disease. See the [MRSA information page](#) on the Public Health website |
| **Bacteria - Salmonella** | Anyone  
However the old, young and people with a weak immune system are at greater risk | Is a notifiable disease. See the [Salmonellosis page](#) on the Public Health website  
The reported disease numbers for WA. |
| bed bugs        | Anyone  
Higher risk in backpackers and short term accommodation with high turnover | None available                                  |
| fleas           | Anyone  
Higher risk in accommodation with dogs and cats | None available                                  |
| fungus (tinea)  | Anyone | None available                                  |
| lice - body     | Anyone | None available                                  |
### Management of the public health risks associated with cloth materials in Western Australia

<table>
<thead>
<tr>
<th>Condition</th>
<th>Group at Risk</th>
<th>Risk Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>lice - head</strong></td>
<td>Anyone</td>
<td>None available for WA</td>
</tr>
</tbody>
</table>
|                    | Higher risk in schools and day care centres       | The NSW Health Nitbuster program has found that when sampled, more than 23 per cent of primary school aged children in New South Wales had head lice. Infestations appear to be on the increase, due to factors such as:  
  - resistance to the common chemicals used in head lice products  
  - inappropriate use of the treatments  
  - changing social and school practices. |
| **pin worm**       | Anyone                                            | None available                                                                                    |
| (threadworm)       |                                                   |                                                     |
| **scabies**        | Anyone                                            | Scabies occurs across Australia, but most frequently in socioeconomically disadvantaged populations in tropical regions, including in remote Aboriginal and Torres Strait Islander communities. In temperate settings, the disease clusters in institutional care facilities. |
|                    | Higher risk in lower socioeconomic areas with reduced hygiene | The young and old are more commonly affected                                                     |
|                    | The young and old are more commonly affected       |                                                     |
| **viruses**        | People with chronic conditions such as asthma, chronic lung disease, heart disease, blood disorders, liver and kidney disorders, endocrine disorders and obesity are more likely to develop complications from flu. | People with chronic conditions such as asthma, chronic lung disease, heart disease, blood disorders, liver and kidney disorders, endocrine disorders and obesity are more likely to develop complications from flu. |
| (norovirus, influenza) | Anyone                                            |                                                     |
|                    | The old and young are at greater risk              |                                                     |
|                    |                                                   |                                                     |

The DoH Centre for Disease Control Directorate publishes a weekly virus watch report which summarises virus presentations based on data received from participating emergency departments.

The Australia Government Department of Health publishes influenza reports and updates.

The Immunisation Coalition reports that there were 250,000 laboratory confirmed cases of influenza reported in 2017.

HealthDirect reports that influenza causes an average of 13,500 hospitalisations and more than 3,000 deaths among Australians aged over 50 years each year.

The highest rates of hospitalisation are seen in children under 5 and the elderly.
Community concern

A media search has revealed no articles discussing issues from unclean second-hand clothing or hire clothing/footwear/headwear in Australia.

It is therefore unlikely this is an area of high public concern.

The power of social media and easily accessible business reviews would motivate costume and hire clothing companies to provide clean clothes and wigs.

Emerging issues

Of the public health risks via fomite transmission listed in Table 2 Number of cases and risk factors of the disease in WA, the majority have a very low chance of transmission through cloth materials.

However bed bugs are becoming an emerging issue due to their increasing prevalence worldwide. Bed bug populations have exploded all over the world, particularly in Australia where some estimate there has been a 5,000 per cent increase since 2000(2).

Bed bugs can survive for more than 6 months without feeding, which enables them to hide out waiting for hosts in furniture, mattresses, bedding and clothing. They can also survive temperatures as varied as freezing to >45°C. This trait enables them to survive transportation more easily than ever, hitching a ride on second-hand items.

Due to persistent issues in the community, 21 states in America have a law or regulation in relation to bed bugs. Some of these states have outlawed the sale of second-hand mattresses and/or bedding.
3.1 Public health risk assessment

Globally, public health is a high priority that in many situations requires legislation to define the roles and responsibilities of individuals, agencies and others, to protect public health by reducing the risk of public health harm or incident occurrence.

The *Public Health Act 2016* introduces the term ‘public health risk’ which means ‘a risk of harm to public health’. *Harm* is defined in the Act to mean ‘physical or psychological harm to individuals, whether of long-term or immediate impact or effect’.

These definitions cover a range of potential public health risks including:

- physical e.g. noise, mechanical hazards, radiation and vibration
- chemical either naturally occurring or synthetic substances or
- biological e.g. viruses, bacteria and vermin.

The main intention of regulations to be created under the *Public Health Act 2016* is to ensure measures are in place to prevent, control or abate public health risks.

In order to assess the risks associated with cloth materials, the application of a health risk assessment matrix is important to understand the severity of the risks the DoH and other enforcement agencies must protect the community from.

The Environmental Health Directorate has adopted the risk assessment model provided by the 2011 Health Risk Assessment (Scoping) Guidelines, Department of Health WA. This model is based on the principles of the *Environmental health risk assessment: Guidelines for assessing human health risks from environmental hazards. enHealth, June 2012*.

The application of this risk assessment model provides greater surety that risks are assessed in a systematic, consistent and transparent manner across different hazards across WA. The application of the risk matrix model to the various risks associated with cloth materials is provided in Table 4.

Table 3 below provides the foundation as to why certain management requirements, such as regulations or a guideline, may be necessary for the higher ranked risk categories.

**Table 3 Definition of risk levels**

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>DoH management requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Low Public Health Risk</td>
<td>No further assessment required</td>
</tr>
<tr>
<td>Low Public Health Risk</td>
<td>Some mitigation/management may be required – no detailed assessment of health hazards required but addressed with routine controls</td>
</tr>
<tr>
<td>Moderate/Medium Public Health Risk</td>
<td>Substantial mitigation/management required – assessment required of health hazards</td>
</tr>
<tr>
<td>High Public Health Risk</td>
<td>Not an acceptable risk. The DoH needs to be involved in the management of high public health risks.</td>
</tr>
<tr>
<td>Extreme Public Health Risk</td>
<td>Major mitigation/management (including offsets) may be required – assessment required of health hazards</td>
</tr>
<tr>
<td></td>
<td>Potentially unacceptable: modification of proposal required</td>
</tr>
</tbody>
</table>
Table 4 Public health risk assessment of risks associated with cloth materials applies the risk assessment model (Appendix 2 - Public health risk assessment) to the risks associated with cloth materials. The assessment identified there are low risks associated with fomite transmission of contaminated cloth materials. The most likely public health risk is bed bugs which, while a nuisance, do not carry disease.

Under the Public Health Act 2016, there is a responsibility to implement the objects and principles of the Act which guide decision making to ensure the Act is administered in a manner that maximises the protection, promotion and improvement of public health and reduces preventable illness. The objects and principles help to recast the Act from being simply reactive – about health protection – to being proactive, looking ahead to the structures and initiatives necessary to avoid problems and keep the community healthy.

Therefore, based on the public health risks identified as part of the risk assessment process, the nature of appropriate controls to protect the community from any risks related to cloth materials will be considered.

Health or well-being risk is expressed in terms of a particular consequence for a particular activity and the likelihood of that particular consequence occurring. The DoH has five public health risks levels (shown in Table 8), each requiring a varying degree of DoH involvement in their management. When a public health risk is identified to be High or Extreme, the DoH need to be involved in the management of that public health risk.

Table 4 Public health risk assessment of risks associated with cloth materials’ summarises the:

- Various public health risks associated with cloth materials
- Potential causes of these risks
- Persons who are most at risk e.g. young, old, pregnant women, men, women, employees, people with disabilities
- Severity of the impact of the risk
- Likelihood of impact
- Risk level e.g. very low, low, moderate, high, extreme
- Current legislation in place to effectively deal with the risk.

Refer to Appendix 2 - Public health risk assessment for a summary of the risk matrix model applied in Table 4.
### Table 4 Public health risk assessment of risks associated with cloth materials

<table>
<thead>
<tr>
<th>Public Health Risk</th>
<th>Who is at risk</th>
<th>Severity of impact*</th>
<th>Likelihood of impact**</th>
<th>Risk Level***</th>
<th>Current legislation in place to deal with the risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fomite disease transmission from unclean items</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bacteria e.g. Methicillin-resistant Staphylococcus aureus (MRSA) and salmonella</td>
<td>Anyone</td>
<td>Moderate</td>
<td>Possible</td>
<td>Low</td>
<td>Health (Cloth Materials) Regulations 1985</td>
</tr>
<tr>
<td>Bed bugs</td>
<td>Anyone</td>
<td>Minor</td>
<td>Possible</td>
<td>Medium</td>
<td>Health (Cloth Materials) Regulations 1985</td>
</tr>
<tr>
<td>Fleas</td>
<td>Anyone</td>
<td>Minor</td>
<td>Possible</td>
<td>Low</td>
<td>Health (Cloth Materials) Regulations 1985</td>
</tr>
<tr>
<td>Fungus</td>
<td>Anyone in contact with contaminated items</td>
<td>Minor</td>
<td>Possible</td>
<td>Low</td>
<td>Health (Cloth Materials) Regulations 1985</td>
</tr>
<tr>
<td>Lice</td>
<td>Anyone in contact with contaminated items</td>
<td>Minor</td>
<td>Possible</td>
<td>Low</td>
<td>Health (Cloth Materials) Regulations 1985</td>
</tr>
<tr>
<td>Pin worm</td>
<td>Anyone in contact with contaminated items</td>
<td>Minor</td>
<td>Possible</td>
<td>Low</td>
<td>Health (Cloth Materials) Regulations 1985</td>
</tr>
<tr>
<td>Scabies</td>
<td>Anyone in contact with contaminated items</td>
<td>Minor</td>
<td>Possible</td>
<td>Low</td>
<td>Health (Cloth Materials) Regulations 1985</td>
</tr>
<tr>
<td>Viruses</td>
<td>Anyone in contact with contaminated items. The young, elderly and people with compromised immune systems may be at higher risk</td>
<td>Moderate</td>
<td>Possible</td>
<td>Low</td>
<td>Health (Cloth Materials) Regulations 1985</td>
</tr>
</tbody>
</table>

* Health consequence table adapted from the 2011 Health Risk Assessment (Scoping) Guidelines, Department of Health WA (refer to Appendix)

** Risk likelihood table adopted from the 2011 Health Risk Assessment (Scoping) Guidelines, Department of Health WA (refer to Appendix)

*** Final risk rating from the risk matrix (refer to 8.2 Appendix 2 - Public health risk assessment)
4 Current management of cloth materials

4.1 Western Australia

4.1.1 Health (Cloth Materials) Regulations 1985

The Health (Cloth Materials) Regulations 1985 are designed to prevent fomite transfer of infection through contact with unclean items such as second-hand clothing and furniture and hire equipment such as wigs, costumes and footwear.

The regulations prescribe that an approved process of cleaning and disinfection is to be used for such items and that second-hand clothing must be labelled with the date of cleaning and details of the cleaning of a garment or alternatively, that a notice be displayed in close proximity to the worn clothing.

The regulations also prohibit a person from trying on new or used clothing if they have a contagious or communicable disease and state they must be wearing clean undergarments. They further state that used furnishings (bedding, upholstery, carpets, curtains, soft floor coverings, cushions and similar articles) must be cleaned and disinfected by an approved process. This only applies to the retail sale of second-hand items and not private sale or when included in the sale of a house, car, boat, caravan etc.

The regulations specify details about the storage of cleaned items and state they are to be kept separate from unclean items to avoid contamination. They prohibit the sale of items collected from refuse sites and local authorities may direct a seller to dispose of such items or direct the seller to destroy or clean and disinfect second-hand items that are considered contaminated.
A person who commits an offence under the regulations is liable to a penalty of not more than $1,000 - and not less than $100 for a first offence, $200 for a second offence and for a third or subsequent offence $500. Additionally, if that offence is a continuing offence, a daily penalty of not more than $100 and not less than $50 can be applied.

4.1.2 Current management
These regulations were introduced in 1985 and have not undergone any significant changes since then. A brief survey of local second-hand clothing stores and consultation with AOs indicate these regulations are not currently being enforced.

Objectives of the regulations
The objectives of the Health (Cloth Materials) Regulations 1985 are:

- to prevent the spread of parasites, bacteria, viruses and other infections associated with contaminated cloth materials.

4.1.3 Summary of current WA risk management practices
The current regulations provide for a range of enforcement or compliance roles and responsibilities of government, industry and consumers. These impacts, including the current cost implications of the Health (Cloth Materials) Regulations 1985, are summarised below.

4.1.3.1 Role of the Department of Health
There is no evidence (e.g. records) that the DoH has been involved in any matters related to cloth materials in the last decade. Phone enquiries from the public have been received, however no infringements have been issued or prosecutions commenced.

The DoH does not have any supplementary information relating to this legislation available publicly. There are no explanatory notes or guidance documents on the DoH public health website.
4.1.3.2 Role of local government enforcement agencies

Local government enforcement agencies have a responsibility to enforce the *Health (Cloth Materials) Regulations 1985*. Enforcement agencies employ authorised officers (AOs) who are responsible for ensuring enforcement and compliance with the legislation.

Initial consultation indicates these regulations are not being enforced. Second-hand retailers and hire clothing companies are not inspected and do not require a licence or registration.

4.1.3.3 Requirements for industry

A search using the yellow pages online and a web search yielded the following number of businesses impacted by these regulations in WA.

<table>
<thead>
<tr>
<th>Premises</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second-hand furniture shops</td>
<td>395</td>
</tr>
<tr>
<td>Second-hand clothing</td>
<td>187</td>
</tr>
<tr>
<td>costume and wig hire shops</td>
<td>91</td>
</tr>
<tr>
<td>ice skating and roller skating rinks</td>
<td>7</td>
</tr>
<tr>
<td>scooter, motorcycle (and helmet) hire</td>
<td>28</td>
</tr>
<tr>
<td>bicycle (and helmet) hire</td>
<td>42</td>
</tr>
<tr>
<td>clothing rental and hire online</td>
<td>Unknown but &gt;5000</td>
</tr>
</tbody>
</table>

| Total                                         | >5750   |

Initial consultation indicates these businesses are not being inspected and the regulations are not being enforced.

4.1.3.4 Impacts on public / consumers

There are currently no notable impacts of these regulations on consumers as they are not enforced by local government. However, it is good business practice to disinfect hire equipment before use and with the growing power of social media, businesses would be keen to avoid complaints about unsavoury business practices.

The attendees at the August 2017 Public Health Act Reference Group (PHARG) meeting were surveyed and asked whether they had received any complaints regarding the enforcement of the *Health (Cloth Materials) Regulations 1985* and if they were happy for them to be repealed. There were no reports of any complaints or enforcement and there were no objections against repealing these regulations. There were 13 external attendees including environmental health officers and representatives from metropolitan and regional local government, as well as Environmental Health Australia and the WA Local Government Association.

The Consumer Protection Division of the Department of Mines, Industry Regulation and Safety performed a search of their database and had one registered complaint in the past 10 years regarding cleanliness of a second-hand item of clothing. The customer was given a store credit. There were no reports of any complaints relating to hire clothing, headwear or footwear.
Arguably, the fact that these cloth materials are being cleaned/disinfected properly could also mean that the regulations are working and the consumer is benefitting by the regulations being in existence. The lack of consumer complaints may indicate that no enforcement of the regulations is needed.

4.2 National

No other state or territory uses regulations to directly manage the public health risks associated with the sale of second-hand items or the hire of related products. Inquiries were sent to all states and territories and the results are summarised in the table below.

Table 6 Management of public health risks of cloth materials in Australia

<table>
<thead>
<tr>
<th>State/Territory</th>
<th>Legislation and Supporting Documents</th>
</tr>
</thead>
</table>
| ACT             | No reference on the public health website  
|                 | No reply to email query |
| QLD             | No reference on the public health website  
|                 | There is no specific regulation under the Public Health Act 2005 (Qld) covering this matter. The closest is section 11 of the Public Health Act 2005 in terms of a ‘local government public health risk’. The response from the Environmental Hazards Unit stated that if there was a significant risk, this legislation could be invoked.  
<p>|                 | There have been no reported issues in the past 10 years. |</p>
<table>
<thead>
<tr>
<th>State/Territory</th>
<th>Legislation and Supporting Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>No regulations.</td>
</tr>
<tr>
<td></td>
<td>The NSW Health Bed Bugs information page states “Bed bugs are not considered as a public health hazard” and references the <a href="#">Bed Bugs Code of Practice</a> produced by the Department of Medical Entomology at Westmead Hospital.</td>
</tr>
<tr>
<td></td>
<td>No reply to email query</td>
</tr>
<tr>
<td>NT</td>
<td>No reference on the public health website</td>
</tr>
<tr>
<td></td>
<td>No specific health regulations related to the hiring of clothing, bedding etc. Have not received any complaints related to this issue in recent history. In the event of a complaint, the public health nuisance provisions of the <a href="#">Public and Environmental Health Act (NT)</a> may be utilised. A public health nuisance is considered to be anything that: ‘(a) puts at risk or damages public health; or (b) has put at risk or damaged public health; or (c) is likely to put at risk or damage public health.’</td>
</tr>
<tr>
<td>SA</td>
<td>There are no specific laws in South Australia that require second-hand dealers to clean goods before they are offered for sale to the public.</td>
</tr>
<tr>
<td></td>
<td>Public information is provided on the <a href="#">SA Health website - Buying and selling second hand goods</a></td>
</tr>
<tr>
<td></td>
<td>No reply to email query</td>
</tr>
<tr>
<td>TAS</td>
<td>No reference on the public health website</td>
</tr>
<tr>
<td></td>
<td>No reply to email query</td>
</tr>
<tr>
<td>VIC</td>
<td><a href="#">Public Health and Wellbeing Regulations 2009 (Vic)</a></td>
</tr>
<tr>
<td></td>
<td>There is currently no legislation in Victoria that covers the cleaning and/or disinfection requirements for hiring or the sale of second-hand items. However, the Public Health and Wellbeing Regulations 2009 regulate the cleanliness of prescribed accommodation premises which takes into account bedding.</td>
</tr>
<tr>
<td></td>
<td>Additionally, it is an offence to “cause a nuisance” under s 61 of the Public Health and Wellbeing Act 2008 (Vic) - which may arguably apply if a person or business sold or otherwise distributed goods that were &quot;dangerous to health or offensive&quot;.</td>
</tr>
</tbody>
</table>

### 4.3 International

#### 4.3.1 New Zealand

Research found no evidence of regulatory requirements around the hire or sale of used cloth materials including bedding.

The only relevant public health advice found was the [NZ Ministry of Health website on bed bugs](#).

Bed bugs prevention advises:
always check second-hand furniture before bringing it into your home
avoid buying second-hand mattresses
wash second-hand bedding and clothing in hot water immediately (provided the fabric can tolerate it).

4.3.2 United Kingdom
Research found no evidence of regulatory requirements around the hire or sale of used cloth materials including bedding.

4.3.3 United States
Research found no evidence of regulatory requirements around the hire or sale of used cloth materials with the exception of the sale of second-hand bedding in some states.

While in many states such as New York State, Florida and Illinois it is illegal to sell used bedding, some states have regulations that allow for the sale of used bedding under strict sanitising and labelling conditions. For example:

North Carolina General Statutes Chapter 106 Article 4H. Bedding: Bedding that is sold second-hand must be sanitised in accordance with rules adopted by the Board of Agriculture. This Article specifies the type of apparatus and products to be used and the details required when labelling sanitised product.

Colorado Revised Statutes 2016 Public Health and Environment 25-5-303 Products control and safety: No person shall sell or distribute any bedding or bedding materials which are not clean or which may be deemed injurious to the public's health.

Part 3 Mattresses and Bedding 25-5-305: No person engaged in manufacturing, remaking, or renovating bedding for sale or distribution shall use any previously used material which since last used has not been disinfected by a method approved by the department of public health and environment.
5 Options to address the issue

5.1 Option A: Retain status quo
Retain the status quo, that is, make no changes to the current regulatory system by replacing the current regulations with equivalent regulations as far as practicable under the new Public Health Act 2016.

The DoH does not consider this as an appropriate option. The Health (Cloth Materials) 1985 Regulations were created under the old regulatory framework of the Health (Miscellaneous Provisions) Act 1911. All regulations created under this Act must be either repealed or transferred in some form under the new regulatory framework of the Public Health Act 2016. The existing regulations are outdated, with generic and/or potentially antiquated cleaning methods prescribed.

5.1.1 Impact analysis
Advantages (benefits)
- no change to current system.

Disadvantages (costs)
- regulations may potentially increase the workload for Authorised Officers
- the regulations would contain outdated cleaning methods and techniques.

5.2 Option B: Deregulate the cloth materials industry
In Option B, the DoH would repeal the Health (Cloth Materials) Regulations 1985 without replacement. The DoH could provide guidance on sanitation of hire and second-hand clothing and goods through a guideline. In the event of an identified public health risk, enforcers of the Public Health Act 2016 could use the general public health duty to prevent ongoing risks through the issuing of improvement notices or enforcement orders.

This option is the DoH’s preferred option and would be consistent with the rest of Australia.

Consultation with the Public Health Act Reference Group has indicated that repealing the regulations is supported.

No State or Territory (who responded to the DoH enquiries) identified cloth materials as possessing a risk to public health warranting regulations and none reported any complaints or incidences in the past 10 years.

5.2.1 Impact analysis
Advantages (benefits)
- red tape reduction
- reduction in enforcement requirements for AOs
- any public health risks can be managed by the general public health duty and guideline.

Disadvantages (costs)
- none foreseeable.
5.3 **Option C: Develop new regulations**

Develop new Cloth Materials Regulations in accordance with the *Public Health Act 2016*.

If updated regulations are implemented the cloth materials industry could be registerable and/or licensable. These fees could offset the cost of inspections and enforcement. Additionally best practice disinfection methods could be included in the updated requirements.

This is not the DoH's preferred option as the risks are deemed to be low and of minor consequence. Additionally, this is not an approach found to be utilised or required nationally or internationally.

Any public health risks could be managed though the general public health duty section of the *Public Health Act 2016*.

5.3.1 **Impact analysis**

**Advantages (benefits)**
- industry could be registerable and/or licensable and offset the cost of inspections/enforcement
- updated disinfection requirements for the industry

**Disadvantages (costs)**
- enforcement requirements for local government.
### 5.4 Options summary

**Table 7 Advantages (benefits) and disadvantages (costs) of each option**

<table>
<thead>
<tr>
<th>Option</th>
<th>Advantages (benefits)</th>
<th>Disadvantages (costs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option A: Retain status quo</td>
<td>- No change to current system</td>
<td>- Regulations may potentially increase the workload for AOs</td>
</tr>
<tr>
<td></td>
<td>- Regulations would contain outdated cleaning methods and techniques</td>
<td>- the regulations would contain outdated cleaning methods and techniques</td>
</tr>
<tr>
<td>Option B: Deregulate the cloth materials industry</td>
<td>- Red tape reduction</td>
<td>- none foreseeable</td>
</tr>
<tr>
<td></td>
<td>- Reduction in enforcement requirements for AOs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Public health risks can be managed by the general public health duty and guideline</td>
<td></td>
</tr>
<tr>
<td>Option C: Develop new regulations</td>
<td>- Industry could be registerable and/or licensable and offset the cost of inspections/enforcement</td>
<td>- enforcement requirements for local government.</td>
</tr>
<tr>
<td></td>
<td>- Updated disinfection requirements for the industry</td>
<td></td>
</tr>
</tbody>
</table>

### 5.5 Questions

Please refer to the [online cloth materials consultation survey](https://consultation.health.wa.gov.au/) which outlines a series of questions to help to determine your preferred option.
6  Next steps

The information gathered from this stage of the review will form the basis for the next stage of the process. Your input is crucial as it will assist in identifying issues of concern and developing options for reform for consideration by stakeholders.

Information provided will be collated into a publicly available report on the DoH’s website. Please note that because your feedback forms part of a public consultation process, the Government may quote from your comments in future publications. If you prefer your name and organisation to remain confidential, please indicate that in your submission. As submissions made in response to this paper will be subject to Freedom of Information requests, please do not include any personal or confidential information that you do not wish to become available to the public.

The consultation and feedback process will be open until COB 14 September 2018. Please direct any feedback to publichealthact@health.wa.gov.au.

7  Key dates

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 July 2018</td>
<td>Consultation period open</td>
</tr>
<tr>
<td>14 September 2018</td>
<td>Submissions closed</td>
</tr>
<tr>
<td>1 December 2018</td>
<td>Consultation report to be published</td>
</tr>
</tbody>
</table>
8 Appendices

8.1 Appendix 1 – Regulatory mechanisms under the Public Health Act 2016

Once fully implemented, the Public Health Act 2016 will have a number of ways to deal with public health risk management and offences. These include:

- General public health duty
- Infringement notices
- Improvement notices and enforcement orders
- Prosecution; and
- Registration and licensing.

General public health duty

The general public health duty requires that a person must take all reasonable and practicable steps to prevent or minimise any harm to public health that might foreseeably result from anything done or omitted to be done by the person.

Where the general duty is to be applied, there must be some clear harm (or foreseeable harm) to public health. In cases where matters are a nuisance or amenity problem but no health effect can be proven, such as unsightly yards, neighbourhood disputes and inconveniences, the general duty will not apply.

Non-compliance with the general duty is not an offence in itself but may lead to action such as the issuing of improvement notices and enforcement orders under Part 14 of the Public Health Act 2016. Guidelines and regulations may be used to clarify the application of the general public health duty and provide information about the measures that may constitute compliance or non-compliance.

A person will not be taken to be in breach of the general duty if acting in a manner that accords with generally acceptable practices or in circumstances prescribed by regulations or if they choose some other appropriate way to manage the issue.

Infringement notices

The Act allows for the making of regulations that prescribe offences for which an infringement notice may be issued. An infringement notice is a written notice that a person has allegedly committed a specific offence which requires the payment of a fine or the election to have the matter heard in court. Payment of the fine does not lead to the recording of a conviction.

In the development of the new regulations, the DoH must give consideration to the use of infringement notices and which offences will be prescribed as those for which an infringement notice can be issued.

An infringement notice may generally be used when:

- there is prima facie evidence of a legislative breach;
- a legislative breach has occurred which is of minor impact and which can be remedied easily;
- a breach is the result of failure to comply with normal operating procedures or requirements which are ordinarily in place and if used would have prevented that breach;
- no further prosecution of that matter is necessary; and
- it is likely to be an adequate deterrent.

It would be inappropriate to use an infringement notice when:
- large-scale harm to public health has occurred;
- the breach has had a significant impact upon other persons or property;
- the breach is continuing, and it is not within the alleged offender's ability to remedy quickly.

Infringement notices can only be issued where prescribed by a regulation or local law.

**Improvement notices and Enforcement orders**

An improvement notice is an order that either requires or prohibits a person from taking specified action. There is often a timeframe in which the offender has to comply with the improvement notice. Once the timeframe has elapsed, the AO can:

- Extend the time in which the offender has to comply.
- Issue a notice of compliance if the officer is satisfied, after carrying out an appropriate assessment, that the improvement notice has been complied with.
- Issue a notice that sets out the reasons why the officer is not satisfied that the improvement notice has been complied with.

An enforcement order is an order that either requires or prohibits a person from taking specified action. A prohibition with respect to specified action may be limited, absolute or conditional.

An enforcement order can be issued by an enforcement agency if it reasonably believes that an improvement notice has not been complied with, or if the issue of the order is necessary to prevent or mitigate a serious public health risk. An enforcement agency may issue an enforcement order in respect of non-compliance with an improvement notice irrespective of whether the improvement notice was issued by a person who was an officer of that or another agency.

Enforcement agencies can use improvement notices or enforcement orders under the *Public Health Act 2016* in relation to aspects of regulations should they choose to do so. Regulations may also specifically provide that failing to comply with certain provisions constitutes grounds for the issue of an improvement notice or enforcement order. Section 304(3)(l) of the Act provides this specific power for regulations.

**Prosecution**

Prosecution plays an important role in deterring non-compliance with legislation. In accordance with Part 18, section 280 of the *Public Health Act 2016*, an enforcement agency may commence proceedings for an offence under the Act or its regulations. As prosecution is separate from action under Part 14, it can be commenced irrespective of whether an improvement notice or enforcement order has been issued. The relevant circumstances may include, for example, where the breach relates to a serious compromise of health standards and is of such a nature as to amount to a serious threat to public health and safety.

**Registration and licensing**

Under the *Public Health Act 2016*, regulations can declare what is a public health risk activity and if it is required to be registered, licensed or both. The regulations will prescribe who the appropriate enforcement agency is for each registrable and/or licensable activity. This may be the local government, the Chief Health Officer or both. The regulations may also prescribe an annual or other fee in relation to the registration or licensing of a registrable or licensable activity. Regulations may prescribe offences in relation to an activity and provide modified penalties for which an infringement notice may be issued.
8.2 Appendix 2 - Public health risk assessment

A number of risk assessment tools need to be used to determine the risk level for each identified public health risk. These tools include a consequence category table (Table 9), a risk likelihood table (10) and a risk qualitative matrix (Table 11).

This risk assessment tools are from AS/NZS ISO 31000:2009 Risk Management – Principles and guidelines (3) and the Health Risk Assessment (Scoping) Guidelines (4).

The DoH has 5 Public Health Risks levels (shown Table 8), each requiring a varying degree of DoH involvement in their management.

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>DoH management requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Low Public Health Risk</td>
<td>No further assessment required</td>
</tr>
<tr>
<td>Low Public Health Risk</td>
<td>Some mitigation/management may be required – no detailed assessment of health hazards required but addressed with routine controls</td>
</tr>
<tr>
<td>Moderate/Medium Public Health Risk</td>
<td>Substantial mitigation/management required – assessment required of health hazards</td>
</tr>
<tr>
<td>High Public Health Risk</td>
<td>Not an acceptable risk. The DoH needs to be involved in the management of high public health risks. Major mitigation/management (including offsets) may be required – assessment required of health hazards</td>
</tr>
<tr>
<td>Extreme Public Health Risk</td>
<td>Potentially unacceptable: modification of proposal required</td>
</tr>
</tbody>
</table>

Table 8 Definition of risk levels

Table 9 Health consequences table adapted from the 2011 Health Risk Assessment (Scoping) Guidelines, Department of Health WA

<table>
<thead>
<tr>
<th>Category</th>
<th>Acute Health Consequences (per hazard or outbreak)</th>
<th>Chronic Health Consequences (per project lifecycle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Catastrophic</td>
<td>• &gt;1 fatality</td>
<td>Chronic health effect requiring medical treatment for 10 – 15 % of populations at risk</td>
</tr>
<tr>
<td></td>
<td>• OR &gt;5 permanent disabilities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• OR Non-permanent injuries requiring hospitalisation for 5 – 10 % of populations at risk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• OR Acute health effect requiring hospitalisation for 5 – 10 % of populations at risk</td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Acute Health Consequences (per hazard or outbreak)</td>
<td>Chronic Health Consequences (per project lifecycle)</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| **2** Massive       | • 1 fatality  
• OR 2 – 5 permanent disabilities  
• OR Non-permanent injuries requiring hospitalisation for 2 – 5% of populations at risk  
• OR Acute health effect requiring hospitalisation for 2 – 5% of populations at risk | Chronic health effect requiring medical treatment for 5 - 10% of population at risk                                   |
| **3** Major         | • No fatality  
• AND 1 permanent disability  
• OR Non-permanent injuries requiring hospitalisation for 1 – 2% of populations at risk  
• OR Acute health effect requiring hospitalisation for 1 - 2% of populations at risk  
• OR Evacuation is necessary | Chronic health effect requiring medical treatment for 2 - 5% of population at risk                                    |
| **4** Moderate/    | • No fatality  
• AND No permanent disability  
• AND Non-permanent injuries requiring hospitalisation for 1 – 2% of populations at risk  
• OR Acute health effect requiring hospitalisation for 1 – 2% of populations at risk  
• AND No evacuation | Chronic health effect requiring medical treatment for 1 - 2% of population at risk                                    |
| Significant         |                                                                                                                                                                   |                                                                                                                                 |
| **5** Minor         | • No fatality  
• AND No permanent disability  
• AND Non-permanent injuries requiring hospitalisation for 1 – 5 persons  
• OR No Acute health effect requiring hospitalisation  
• AND No evacuation | Chronic health effect requiring medical treatment for 0 - 1% of population at risk                                     |
| **6** Negligible/  | • No fatality  
• AND No permanent disability  
• AND No Non-permanent injuries requiring hospitalisation  
• AND No Acute health effect requiring hospitalisation  
• AND No evacuation | No chronic health effect requiring medical treatment                                                               |
| Slight              |                                                                                                                                                                   |                                                                                                                                 |
Table 10 Risk likelihood table adopted from the 2011 Health Risk Assessment (Scoping) Guidelines, Department of Health WA

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Expected or Actual Frequency</th>
<th>% Chance of chronic health effect during life of project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almost Certain</td>
<td>More than once a year</td>
<td>Over 90%</td>
</tr>
<tr>
<td>Likely</td>
<td>Once in 1 to 3 years</td>
<td>61 – 90%</td>
</tr>
<tr>
<td>Possible/Occasionally</td>
<td>Once in 3 – 5 years</td>
<td>31 – 60%</td>
</tr>
<tr>
<td>Unlikely</td>
<td>Once in 5 – 10 years</td>
<td>6 – 30%</td>
</tr>
<tr>
<td>Rare/Remote</td>
<td>Once in more than 10 years</td>
<td>Up to 5%</td>
</tr>
</tbody>
</table>

Table 11 Risk matrix (qualitative)

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Consequences</th>
<th>Slight/ Negligible</th>
<th>Minor</th>
<th>Moderate</th>
<th>Major</th>
<th>Massive</th>
<th>Catastrophic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almost certain</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>Extreme</td>
<td>Extreme</td>
<td>Extreme</td>
<td>Extreme</td>
</tr>
<tr>
<td>Likely</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>Extreme</td>
<td>Extreme</td>
<td>Extreme</td>
</tr>
<tr>
<td>Possible</td>
<td>Very Low</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>Extreme</td>
<td></td>
</tr>
<tr>
<td>Unlikely</td>
<td>Very Low</td>
<td>Very Low</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Rare/Remote</td>
<td>Very Low</td>
<td>Very Low</td>
<td>Very Low</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td></td>
</tr>
</tbody>
</table>
9 References
