

# Local government environmental health officers' survey questionnaire on water misting systems

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## Q1 Information Letter

### **An assessment of risks associated with the use of water misting systems as a cooling intervention in public places in the Pilbara region of Western Australia**

My name is Edmore Masaka. I am a PhD student enrolled with the Edith Cowan University, School of Medical and Health Sciences. I am conducting research on the health risks associated with the use of water misting systems to reduce air temperatures in places where people gather for recreation, sports, meetings and other functions. The project is being supervised by Associate Professors Sue Reed and Jacques Oosthuizen of the university's School of Medical and Health Sciences. I am going to provide you with some information about the study and then invite you to take part in the project. You and other environmental health officers in the Pilbara region of Western Australia are being invited to participate in this study because it is felt that your expertise and experience in working as environmental health officers in this region is able to significantly contribute to the understanding and knowledge of water misting systems in the area.

### **What is this study about and why carry it out?**

Exposure of people to bacteria which grow in plumbing systems able to spray small particles of water droplets has been linked to diseases of the lungs, ears and brain caused by breathing in these bacteria. Water misting systems being installed and used in public places and in domestic houses to reduce air temperatures are able to produce small water particles which can contain this type of bacteria. This study aims to find out whether water misting systems actually create an environment where these bacteria can grow and also whether they can produce and release the bacteria into the environment where they can be breathed in by people. The study also wants to know more about the knowledge, attitudes and practices of those involved in the operation of the water misting systems regarding the health risks of using the systems.

**What does participation in the research project involve?** Your participation will involve completing a self-completion questionnaire to find out the number, type and location of water misting systems in your local government area as well as the existing regulatory framework for their operation. The questionnaire will be emailed to you for your completion and submission

online. It is expected that it will take about ten to fifteen minutes to complete the questionnaire.

**To what extent is participation voluntary, and what are the implications of withdrawing that participation?**

Participation in this research project is entirely voluntary and the choice that you make will not in any way have a bearing on your personal, work, or social life. If you decide to participate and later change your mind, you are able to withdraw your participation at any time without any consequence.

**What will happen to the information collected, and is privacy and confidentiality assured?** The information you provide will not be shared with anyone outside the research team. All the information you provide will be kept confidential, anonymous, and identified as group data without your name or your organisation's name. The data is then stored securely at the Edith Cowan University's School of Medical and Health Sciences. Participant privacy, and the confidentiality of information disclosed by participants, is assured at all other times. The data will be used only for this project, and will not be used in any extended or future research without first obtaining explicit written consent from participants. Whilst there may not be an immediate and direct benefit to you, your participation is likely going to help the study find out how to prevent diseases associated with these water misting systems and also improve the monitoring and regulatory control of these systems for the good of public health. A summary of the research findings will be made available to the participants and the school.

**Is this research approved?**

The research has been approved by *Edith Cowan's Ethics Committee* and has met the ECU Policy for the Conduct of Ethical Human Research.

**Who do I contact if I wish to discuss the project further?** If you would like to discuss any aspect of this study with a member of the research team, please contact me on the number provided below

Mr Edmore Masaka PhD Student  
School of Medical and Health Sciences,  
Edith Cowan University  
Cell: 0407993409 Email: [emasaka@our.ecu.edu.au](mailto:emasaka@our.ecu.edu.au).

If you wish to speak with the project supervisors about the conduct of the project, please contact: Associate Professors Sue Reed and Jacques Oosthuizen of the ECU School of Medical and Health Sciences on telephone number (08) 63042243.

Q2 Please indicate your willingness to participate in this study by selecting YES below. However if you do not wish to participate in the study, please select NO.

Yes (1)

No (2)

*Skip To: End of Survey If Please indicate your willingness to participate in this study by selecting YES below. However if... = No*

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Q3 How many water misting systems are installed and used in your local government area?

0 (1)

1 - 5 (2)

6 - 10 (3)

>10 (4)

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Q4 How best would you describe the location of the water misting system/s ?

Outdoors e.g. entertainment area, public drinking area, sporting area (1)

Indoors e.g. sports bars, conference and meeting rooms (2)

Both outdoors and indoors (3)

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Q5 Which of the following best describes the purpose for which the water misting system/s are used for ? (Please select all that applies)

- To assist in reducing ambient temperature (1)
  - To assist in humidifying the ambient air (2)
  - As a decorative feature (3)
  - Other use/s (4)
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Q6 What is the source of water used in the water misting systems ?

- Bore water (treated)-chlorine, bromine, ultra violet light etc. (1)
  - Bore water (untreated) (2)
  - Scheme water (3)
  - Surface water (river, dam etc.) (4)
  - Reverse Osmosis (RO) water (5)
  - Rain water tank (6)
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Q7 Which best describes the frequency at which the water misting system/s is/are used ?

- Often ( > than 4 hours per day ) (1)
  - Seasonally ( Only used during summer months) (2)
  - Infrequent ( No regular pattern of usage) (3)
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Q8 How would you describe the type of nozzle, sprinkler used to spray the water mist ?

- Pneumatic ( activated by air pressure) (1)
  - Hydraulic ( activated by water pressure) (2)
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Q9 When in operation, does/do the water misting system/s produce visible water mists?

- Yes (1)
  - No (2)
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Q10 Is the installation and operation of water misting systems in public places subject to any form of approval and licensing by the local government?

- Yes (1)
  - No (2)
- 

Q11 Does your local government conduct any periodic inspection and water testing of misting systems installed in public places?

- Yes (1)
- No (2)

*Skip To: Q13 If Does your local government conduct any periodic inspection and water testing of misting systems i... = No*

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Q12 How often does the local government conduct periodic inspections of your water misting system/s?

- Once per year (1)
  - Twice per year (2)
  - More than twice per year (3)
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Q13 Have you received any complaints related to the use of water misting systems ?

- Yes (1)
- No (2)

*Skip To: Q15 If Have you received any complaints related to the use of water misting systems ? = No*

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Q14 Which of the following best describes the nature of the complaints received ? (Please select all that applies)

- Biological contamination (1)
- Chemical contamination (2)
- Other (3)

*Skip To: Q15 If Which of the following best describes the nature of the complaints received ? (Please select all... = Biological contamination*

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Q15 Are you aware of any health risks associated with the use of water misting systems in your local government area?

- Yes (1)
- No (2)

Skip To: End of Survey If Are you aware of any health risks associated with the use of water misting systems in your local... = No

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Q16 Please select all the health risks you think may be associated with the use of water misting systems

- Cryptosporidium spp.* (1)
- Amoeba spp.* (2)
- Negleria fowleri* (3)
- Campylobacter* (4)
- Legionella spp.* (5)
- Mycobacterium spp.* (6)
- Pseudomonas spp.* (7)

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Q17 Thank you for your participation and time. If you have any enquiry please feel free to contact Edmore Masaka on mobile number 0407993409 or by email at [emasaka@our.ecu.edu.au](mailto:emasaka@our.ecu.edu.au). Thank you very much.

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