Participant ID: _____

QUESTIONNAIRE

Study of the Types and Quantities of Microplastics from Wastewater Sources in Natural Water Bodies and Aquatic Animals, and Public Health Literacy for Preventing Microplastic Contamination in Northeastern Thailand

Instructions

This questionnaire is intended to collect data for the research study entitled “Study of the Types and Quantities of Microplastics from Wastewater Sources in Natural Water Bodies and Aquatic Animals, and Public Health Literacy for Preventing Microplastic Contamination in Northeastern Thailand,” conducted by the Faculty of Public Health, Mahasarakham University. Please answer all questions truthfully. The researcher will keep your information confidential. The information you provide will be used only for research and will be analyzed in aggregate. Please answer every question in each section, as incomplete responses may not be usable for the overall analysis.

This questionnaire consists of three parts:

Part 1: Personal characteristics and health information — 18 items

Part 2: Health literacy related to microplastics — 58 items

Part 3: Behaviors for preventing microplastic contamination — 30 items

Assoc. Prof. Dr. Santisith Khiewkhern
Researcher
Faculty of Public Health, Mahasarakham University
Tel. 065-090-8996 | E-mail: santisith.k@msu.ac.th

Part 1. Personal Characteristics and Health Information

For the researcher: Please enter the answer in the blank space and place a ✓ next to the selected response.

No.	Question	Response	Coding
1	Sex		1) Male 2) Female
2	Age: _____ years		
3	Occupation		1) Rice farmer 2) Gardener 3) Field crop farmer 4) Fisher 5) Merchant/vendor 6) Wage worker 7) Government/state enterprise employee 8) Other (specify): _____
4	Province of residence		1) Nakhon Phanom 2) Maha Sarakham 3) Buriram 4) Other (specify): _____
5	How long have you lived in this area? _____ years		
6	Religion		1) Buddhism 2) Christianity 3) Islam 4) Other (specify): _____
7	Education level		1) No formal education 2) Primary education 3) Secondary education 4) Vocational education 5) Bachelor's degree 6) Master's degree or higher 7) Other (specify): _____
8	Monthly income: _____ baht		
9	Number of household members: _____ persons		
10	Source of drinking water		1) Mekong River 2) Mun River 3) Chi River 4) Tap water 5) Filtered water 6) Bottled water 7) Other (specify): _____
11	Source of household water		1) Mekong River 2) Mun River 3) Chi River 4) Tap water 5) Filtered water 6) Bottled water 7) Other (specify): _____
12	Have you been ill or felt unwell during the past month?		1) Yes 2) No 3) Not sure
13	During the past month, have you visited a doctor?		1) Yes 2) No 3) I was not ill 4) Not sure / cannot remember
14	Have you received a diagnosis from a doctor?		1) Yes 2) No diagnosis received 3) Have not been examined 4) I was not ill 5) Cannot remember / not sure
15	During the past month, I was ill with a disease/condition involving:		1) Respiratory system 2) Gastrointestinal system 3) Cardiovascular system 4) Neurological symptoms 5) Unknown

			6) Cannot remember / not sure 7) I was not ill
16	During the past month, have you consumed aquatic animals?		1) Yes 2) No 3) Cannot remember / not sure
17	Where did you obtain the aquatic animals that you consumed?		1) Caught them myself 2) Purchased from a market or fisher 3) From a neighbor or relative 4) Other (specify): _____
18	What type of aquatic animals did you consume?		1) Fish 2) Snails 3) Crab 4) Other (specify): _____

Part 2. Health Literacy Related to Microplastics

Instructions: Place a ✓ in the response that best matches your knowledge and understanding. For each item, select one level: High, Moderate, or Low.

Knowledge and Understanding

Question code	Question	High	Moderate	Low
Q2.1	Microplastics are plastics that have degraded into very small particles.	☐	☐	☐
Q2.2	Microplastics occur in many types and sizes.	☐	☐	☐
Q2.3*	Microplastics are small plastic particles that cannot be seen with the naked eye.	☐	☐	☐
Q2.4*	Microplastics are not caused by human activities.	☐	☐	☐
Q2.5*	Microplastics originate only from factories that manufacture plastic.	☐	☐	☐
Q2.6	Microplastics can originate from consumer products, including cosmetics.	☐	☐	☐
Q2.7	Microplastics can result from the degradation of waste and plastic debris, including clothing fibers.	☐	☐	☐
Q2.8	Microplastics can contaminate surface water and groundwater.	☐	☐	☐
Q2.9	Microplastics can contaminate freshwater and marine aquatic animals.	☐	☐	☐
Q2.10	Microplastics are commonly found as contaminants in drinking water and water used by humans.	☐	☐	☐
Q2.11	Microplastics can contaminate aquatic plants.	☐	☐	☐
Q2.12	There is no way to completely eliminate microplastics from the natural environment.	☐	☐	☐
Q2.15	Microplastics can enter the human body through consumption of aquatic animals and aquatic plants.	☐	☐	☐
Q2.16	Microplastics can enter the human body through drinking water and water used for household purposes.	☐	☐	☐
Q2.17	Microplastics can enter the human bloodstream and heart.	☐	☐	☐
Q2.18	Microplastics are one possible cause of cardiovascular disease.	☐	☐	☐

Access to Health Information and Health Services

Question code	Question	High	Moderate	Low
Q2.19	I can find sources of information about microplastics.	☐	☐	☐
Q2.20	I can find information about microplastics from websites, health journals, and books.	☐	☐	☐
Q2.21	I can search for information about sources of microplastic contamination.	☐	☐	☐
Q2.22	I cannot find information about microplastics, even when asking knowledgeable people or searching printed media or the Internet.	☐	☐	☐
Q2.23	I can find information about the effects of microplastics on the environment.	☐	☐	☐
Q2.24	I verify information about the effects of microplastics on human health.	☐	☐	☐
Q2.25	I can find information about preventing microplastic contamination in drinking water and household water.	☐	☐	☐
Q2.26	I am confident that the health service provider I choose can provide care that meets my needs.	☐	☐	☐

Communication Skills

Question code	Question	High	Moderate	Low
Q2.27	I can communicate information about sources of microplastics to my neighbors.	☐	☐	☐
Q2.28	I can explain the environmental effects of microplastics so that my neighbors understand.	☐	☐	☐
Q2.29	I can communicate knowledge about the effects of microplastics on natural water bodies.	☐	☐	☐
Q2.30	I can persuade others to accept information about microplastic contamination in animals and aquatic plants.	☐	☐	☐
Q2.31	I can communicate information about preventing microplastic contamination of natural water bodies.	☐	☐	☐
Q2.32	I can communicate information about preventing microplastics from entering the human body.	☐	☐	☐

Q2.33	I can contact local public health officials to obtain information about microplastics.	☐	☐	☐
Q2.34	I can discuss and exchange information with my neighbors about microplastic contamination in the natural environment and in humans.	☐	☐	☐

Self-Management

Question code	Question	High	Moderate	Low
Q2.35	I can assess problems related to sources of microplastics in my community.	☐	☐	☐
Q2.36	I can assess the effects of microplastics on natural water bodies in my community.	☐	☐	☐
Q2.37	I can help reduce the amount of microplastics in my community.	☐	☐	☐
Q2.38	I have ways to observe microplastic contamination in water bodies and aquatic animals in my community.	☐	☐	☐
Q2.39	I have ways to prevent microplastic contamination from drinking water and household water sources.	☐	☐	☐
Q2.40	I have ways to prevent exposure when consuming aquatic animals from water sources suspected of microplastic contamination.	☐	☐	☐
Q2.41	I do not use water from sources suspected of microplastic contamination directly for drinking or food preparation.	☐	☐	☐
Q2.42	I use a water filter for drinking and food preparation.	☐	☐	☐

Media and Information Literacy

Question code	Question	High	Moderate	Low
Q2.43	When I see advertisements for cosmetics or plastic-based products on television or other media and become interested, I seek information from other sources in order to reduce plastic use.	☐	☐	☐
Q2.44	I use reasoning to analyze the advantages and disadvantages of using clothing or products made from plastic.	☐	☐	☐
Q2.45	When I discuss or critique approaches to preventing the health effects of microplastics, I compare the information I receive	☐	☐	☐

	before believing it and putting it into practice.			
Q2.46	I know where to find accurate information about microplastics so that I can verify the information before believing and following it.	☐	☐	☐
Q2.47	I compare information about microplastics from several sources to confirm my understanding before passing it on to others.	☐	☐	☐
Q2.48	I use reasoning to analyze the advantages and disadvantages of information about the effects of microplastics from printed media or the Internet before following it.	☐	☐	☐
Q2.49	I use reasoning to analyze self-care information for preventing microplastics from entering the body, using information from several sources before putting it into practice.	☐	☐	☐
Q2.50	I compare information about principles for preventing microplastic contamination of natural water bodies from several printed or Internet sources before believing and following it.	☐	☐	☐

Making Appropriate Decisions and Taking Correct Action

Question code	Question	High	Moderate	Low
Q2.51	I decide not to use products made from plastic.	☐	☐	☐
Q2.52	I choose products made from natural or recycled materials.	☐	☐	☐
Q2.53	I follow public health officials' recommendations by changing my behavior to choose natural materials instead of plastic materials.	☐	☐	☐
Q2.54	I consider the benefits and harms of using products made from plastic.	☐	☐	☐
Q2.55	I choose not to use cosmetics such as scrubs or whitening toothpaste.	☐	☐	☐
Q2.56	I do not use water from sources suspected of microplastic contamination for drinking or food preparation.	☐	☐	☐
Q2.57	I use a water filter or consume water that has undergone a reliable filtration process.	☐	☐	☐
Q2.58	I eat fish, snails, or other aquatic animals whole without removing the intestines because I	☐	☐	☐

	believe that microplastics cannot enter the animals' bodies.			

Part 3. Behaviors for Preventing Microplastic Contamination

Note: The original questionnaire labels this section as “Part 4,” although the introductory page states that the questionnaire consists of three parts. This English version presents it as Part 3 to match the overall three-part structure.

This section assesses behaviors for preventing microplastic contamination from sources of microplastics and for reducing microplastic contamination in the environment and in humans. There are 30 items. Please place a ✓ in the response that best matches your actual practice.

Scoring: Positive items — Always = 2, Sometimes = 1, Never = 0. Negative items — Always = 0, Sometimes = 1, Never = 2.

Seeking Information about Microplastics

Item	Always	Sometimes	Never
1. I seek knowledge about microplastics from the Internet.	☐	☐	☐
2. I have shared or disseminated knowledge about microplastics.	☐	☐	☐
3. I ask knowledgeable people, such as village health volunteers, community leaders, or factory operators, about sources of microplastics.	☐	☐	☐
4. I have received information about microplastics from various media, such as television, newspapers, mobile phones, or the Internet.	☐	☐	☐
5. I have encountered microplastics in natural water bodies, aquatic animals and plants, or humans.	☐	☐	☐

Sources of Microplastics

Item	Always	Sometimes	Never
6. I dispose of plastic and textile waste by burning it.	☐	☐	☐
7. I dispose of plastic and textile products by burying them in the ground.	☐	☐	☐
8. I dispose of plastic and textile products by selling them.	☐	☐	☐
9. I dispose of plastic and textile products by sending them to the municipality.	☐	☐	☐
10. I dispose of plastic and textile products into water bodies.	☐	☐	☐

Sources of Microplastic Contamination

Item	Always	Sometimes	Never
11. I discharge household wastewater directly into a water body.	☐	☐	☐
12. I discharge household wastewater into the municipal wastewater treatment system.	☐	☐	☐
13. The factory where I work discharges wastewater into a natural water body without prior wastewater treatment.	☐	☐	☐
14. My community discharges community wastewater into a natural water body without prior treatment.	☐	☐	☐
15. I have disposed of waste in a water body.	☐	☐	☐

Environmental Effects of Microplastics

Item	Always	Sometimes	Never
16. I have observed small plastic particles in natural water sources, such as rivers, canals, ponds, or swamps.	☐	☐	☐
17. I have observed small plastic particles in the intestines of fish or snails.	☐	☐	☐
18. I have observed small plastic particles in tap water.	☐	☐	☐
19. I have observed small plastic particles in bottled water.	☐	☐	☐
20. I have observed small plastic particles attached to aquatic plants, such as water mimosa, morning glory, or algae.	☐	☐	☐

Effects of Microplastics on Humans

Item	Always	Sometimes	Never
21. I have experienced cardiovascular disease caused by microplastics.	☐	☐	☐
22. I have experienced intestinal obstruction caused by microplastics.	☐	☐	☐
23. I have cardiovascular disease as a chronic condition.	☐	☐	☐
24. I have encountered microplastics in drinking water sources.	☐	☐	☐
25. I have encountered plastic particles in aquatic animals used for food.	☐	☐	☐

Prevention of Microplastic Contamination

Item	Always	Sometimes	Never
26. I use filtered water for drinking.	☐	☐	☐
27. I use tap water for drinking.	☐	☐	☐
28. I use water from rivers or canals for drinking.	☐	☐	☐
29. I eat aquatic animals, such as fish, snails, or crabs, from natural water bodies located downstream of factory wastewater discharge outlets.	☐	☐	☐
30. I eat aquatic animals, such as fish, snails, or crabs, from natural water bodies located downstream of community wastewater discharge outlets.	☐	☐	☐

Focus Group Discussion / Interview Guide

Topic: Health literacy for preventing microplastic contamination in the environment and humans among people in Northeastern Thailand

Materials

Notebook, pen, and audio recorder

Discussion / Interview Topics

☐ Microplastic contamination in natural water bodies, aquatic animals, and humans

☐ Six components of health literacy: knowledge and understanding; access to health information and health services; communication skills; self-management; media and information literacy; and making appropriate decisions and taking correct action

☐ Behaviors for preventing microplastic contamination in natural water bodies, aquatic animals, and humans

☐ Problems and barriers to preventing microplastic contamination in natural water bodies, aquatic animals, and humans

☐ Opinions and suggestions regarding approaches to preventing microplastic contamination in natural water bodies, aquatic animals, and humans

Discussion / Interview Guide

Introduction (5 minutes)

• Participant's name

• Participant's involvement with natural water bodies and aquatic animals

• Length of residence in the area

Knowledge and Understanding of Microplastics (10 minutes)

• What do you think microplastics are? Where do they come from? What or whom do they affect, and how?

Six Components of Health Literacy (10 minutes)

• What do you think health literacy regarding knowledge and understanding of microplastics means?

• How would you describe access to information about microplastics?

• How would you describe communication skills related to microplastics?

• How would you describe self-management for preventing microplastic exposure?

• How would you describe media and information literacy regarding microplastics?

• What should appropriate decision-making and correct action for preventing microplastic contamination involve?

Behaviors for Preventing Microplastic Contamination in Natural Water Bodies, Aquatic Animals, and Humans (10 minutes)

• What should people do to prevent microplastic contamination of natural water bodies, aquatic animals, and humans?

Problems and Barriers to Preventing Microplastic Contamination (10 minutes)

• What problems and barriers do you think exist in efforts to prevent microplastic contamination of natural water bodies, aquatic animals, and humans?

• What approaches should be used to address these problems and improve prevention of microplastic contamination of natural water bodies, aquatic animals, and humans?

Closing the Focus Group Discussion (5 minutes)