# Interviewer page

Note: Instructions for interviewers are given inside box brackets [INSTR: ...] and should not be read aloud.

[INSTR: Fill the table below]

Respondent ID:	Version:	Start time:	End time:
Date:			
Respondents' Address	Respondent's District:	Respondents'	Interviewer name:
	Description 1 and 2 a Western	sub-ward:	
	Respondent's Ward:		

# [INSTR: Read the following text aloud]

This survey is part of a collaborative research project between Can Tho and Hue University, as well as the University of Stirling in the UK. It aims to explore your views on developing infrastructure to tackle flooding that can also make Can Tho city greener.

The questions aim to find out your attitudes and opinions, so there are no right or wrong answers. Your participation is voluntary, and you may withdraw at any time. Any information you give us will be confidential and will be used for research purposes only.

This research has been granted Ethical Approval by the University of Stirling and the Local People's Committee.

The questionnaire should take around 30 minutes to complete.

# [INSTR: Hand out a copy of the participant information sheet]

- 1. Before we start, I need to ask for your consent to take part in this survey.
  - □ Yes, I consent (1) [INSTR: Thank the respondent and continue to the next question]
  - □ No, I do not consent (0) [INSTR: Thank the respondent and continue to the next question]

[INSTR: Record the numbers of people that did not consent to participate after hearing the above information]

# Part 1: Your life in Can Tho city

### 2. How frequently do you visit parks or public green areas in Can Tho city?

- $\Box$  Daily (1)
- $\Box$  From 1 to 5 times a week (i.e. weekly) (2)
- $\Box$  Less often (e.g. once a month/once every six months/once a year) (3)
- $\Box$  Never (4)
- 3. Do you think Can Tho city has enough parks or public green areas?
  - $\Box$  Yes (1)
  - □ No (0)
- 4. How many birds and butterflies do you think there are in Can Tho city?
  - $\Box$  None at all (1)
  - $\Box$  Only a few (2)
  - $\Box$  A lot (3)
- 5. How many mosquitoes and spiders do you think there are in Can Tho city?
  - $\Box \quad \text{None at all (1)}$
  - $\Box$  Only a few (2)
  - $\Box$  A lot (3)

6. Has your home been severely flooded (causing damage to your home) in the last 5 years? [INSTR: if the interview is done outside people's home, remind them to think on the exact location of their house as stated at the beginning of the interview]

- $\Box$  Yes (1)
- □ No (0)
- 7. On a scale of 0 to 10, how do you rate your household risk of suffering flood damage? (0 being no risk 10 being extremely high risk)

No risk at									Extre	nely high
all										risk
0	1	2	3	4	5	6	7	8	9	10

- 8. Has your household taken any measures to protect against flooding? For instance, elevated the base of the house, installed sandbags, built a wall or barrier, moved furniture to higher places, or bought a water pump.
  - $\Box$  Yes (1)
  - □ No (0)
- **9.** Have you or your family received financial or material aid from public authorities after a severe flood?
  - $\Box$  Only financial aid (1)
  - $\Box$  Only material aid (2)
  - $\Box$  Neither of them (3)
  - $\Box$  Both of them (4)
  - $\Box$  I don't know (-99)

#### 10. How much do you agree or disagree with the following statements?

#### [INSTR: Use flashcard A]

		Strongly disagree (-2)	Disagree (-1)	Neutral (0)	Agree (1)	Strongly agree (2)
10.1	Flooding will mostly affect districts that are outside of the city.					
10.2	Flooding is likely to have a big impact on people with similar socio-economic status than me.					
10.3	I believe that severe flooding will increase in the next 5 years.					
10.4	I think that climate change increases flood risks.					

# Flooding in Can Tho city

Can Tho is located in a low-lying area with a large river and many canals. This makes the city vulnerable to floods from upstream and tides from the sea.

In recent years, the ground around Can Tho city centre has been inundated 72 days of the year. Typically flood levels are shallower than 10 cm. However, on the worse days of the year (about 9 days per year) floods reach up to 47 cm. In fact, flood damages cost on average 20% of the annual income of a typical family in Can Tho. With predicted climate change, these numbers are likely to increase.

[INSTR: Use flashcard B]

# **Part 2: Sponge parks**

Historically urban floods in Vietnam have been managed with the construction of river embankments and reservoirs like the one shown in the picture below:

## [INSTR: Use flashcard C]

The construction of sponge parks helps to reduce the impact of flooding in the city. Sponge parks use permeable surfaces so flood water can seep into the ground and does not overburden the urban drainage system. In other words, these parks act as "sponges" absorbing, storing, and purifying water in the city.

#### [INSTR: Use flashcard D]

Sponge parks, like the ones shown in these images, use **a**) permeable pavement, **b**) trees and bushes, as well as **c**) ponds or artificial wetlands to capture and store rainwater during rainy and dry seasons.

Sponge parks have many functions. They:

- Provide clean air and water
- Decrease flooding by reducing water flows and slowing the release of water
- Reduce noise in the city
- Provide a home to different types of animals and plants
- Create public spaces for recreation, exercise and other social activities

However, if local residents' needs are not considered while planning sponge parks, they may also lead to:

- Allergies, for instance to pollen or grasses
- Pest infestation
- Unattractive and dangerous green areas
- Obstruction of public footpaths and streets

That is why we would like to hear your opinion about building sponge parks in Can Tho!

# Sponge parks in Can Tho

The goal of the current city plan for flood prevention is to use a minimum of 10% of the urban area for water retention. Since the master plan of Can Tho city promotes the adoption of a sustainable development strategy, the government is considering the development of sponge parks in the city.

In Can Tho, there is an opportunity to:

- Upgrade **An Khanh park** to be a sponge park
- Upgrade the park along **Rach Ngỗng** canal to be a sponge park.
- Build additional sponge parks along the **Rach Bà Bộ** and **Rach Từ Hỗ** canals.

The areas are shown on this map:

#### [INSTR: Use flashcard E]

There are many ways to design sponge parks with different effects and costs. In this survey, we want to explore your preferences for developing these sponge parks in Can Tho, and the costs of carrying this out.

Results from this survey will be made available to local authorities to advise with the planning and development of these parks.

Each plan is described by the following changes:

# [INSTR: Use flashcard F]

Maximum flood inundation depth	<ul> <li>Context: Currently, on the worst days of the year (about 9 days per year) floods in Can Tho reach up to 47 cm. With climate change the inundation levels in 2050 are likely to increase.</li> <li>4 levels</li> <li>Go up by +25cm (50% more than today) = reach predicted inundation levels of 72 cm</li> <li>Go up by +12.cm (25% more than today) = 59 cm inundation depth</li> <li>Stay at a similar level, +0 cm (same as today) = 47 cm inundation depth</li> <li>Decrease by -12.cm (25% less than today) = 35 cm inundation depth</li> <li>Note: all the levels applied with 1 in a 100 chance</li> </ul>
	of happening any given year
Recreational activities	<ul> <li>Context: Currently, Can Tho has 24 parks. On average these parks have the size of a football field and represent less than 1% of the total urban area.</li> <li>3 levels: <ul> <li>No new areas to do recreational activities</li> <li>New areas/spaces with infrastructure for walking and resting (paths and benches)</li> <li>New areas/spaces with infrastructure for walking and resting (paths and benches)+ running, outdoor playing and exercising (trails, outdoor playground and gym)</li> </ul> </li> </ul>
Number of types of birds and butterflies	<ul><li>Context: The new sponge parks will have many fruit and shade trees. These trees provide habitat for many plants and animals.</li><li>2 levels:</li></ul>
	<ul> <li>No change (no increase in birds and butterflies species richness)</li> <li>A 10% increase in birds and butterflies species richness, that is equivalent to a 10% rise on the types of birds and butterflies sighted in the parks and around the city.</li> </ul>
Pest abundance	<b>Context</b> : Good park management is essential for pest control. Management that considers the characteristics of the sponge park and their location

will not lead to a pest infestation. However, neglected and abandoned parks (i.e. without proper management) can increase the number of mosquitoes and spiders, or other pests.

#### 2 levels:

- No change (No increase in pest abundance)
- A 10% increase in pest abundance (mosquitoes, spiders, cockroaches, ants). Pest issues are likely to happen since the quality of maintenance is not adequate to species used and the local context.

Monthly water fee surcharge

Building the sponge parks cannot be financed from public funds alone. Funds will be raised from residents through a surcharge on the monthly water fee. As a resident of Can Tho you will be required to pay an amount ranging from VND 25,000 to VND 100,000, in addition to the monthly water bill you already pay. The surcharge will have to be paid monthly for 5 years.

For example, a monthly surcharge of VND 25,000 equals VND 300,000 a year and VND 1,500,000 in 5 years. If the total funds that Can Tho residents are willing to contribute do not cover their total costs, these sponge parks will not be built.

5 Levels: VND 0; VND 25,000; VND 50,000; VND 75,000; VND 100,000

Before we ask you to rate different ways to develop Can Tho urban environment, let's look at an example!

# [INSTR: Use flashcard G]

# [INSTR: After showing the figure, please explain how to read the choice card to the respondent. YOU MAY USE THE INFORMATION WITHIN QUOTES ("...") SHOWN BELOW]

"In this situation a respondent was presented with three plans shown in each column:

The plan on the left reflects the "business as usual" (BAU) in 2050:

- This plan is the continuation of the current flood management plan of the city, which is building river embankments.
- It assumes that no other flood control measures in the city are taken apart from river embankment, which will lead to severe floods and no changes in the other attributes.
- Since costs are already budgeted by the government, it will not cost additional money for his/her household.

Alternatively, if the sponge parks presented in Plan A or B are built by 2050:

The sponge park in Plan A will:

- Increase flood levels only by 12 cm, which is 25% more than today.
- Create new areas for walking and resting.
- Lead to no increase in the types of birds and pest abundance.
- However, building this park will lead to a cost surcharge of VND 50,000.

Finally, the sponge park in Plan B will:

- Keep the flood levels as today.
- Not only create space for walking and resting, but also for outdoor playing and exercising.
- Increase both, birds and butterflies, as well as pest abundance by 10%.

As you can see here, the respondent ticked the Management Plan B as his/her most preferred alternative.

The respondent chose this plan as he/she is willing to pay VND 100,000 per month in addition to his household's normal water fee figure."

# [INSTR: Before moving on, ask the respondent if they have understood how to read and answer the choice card. If not, explain it again]

The next pages will show you more management plan options in Can Tho, similar to the one just explained. Please look at them carefully and think which is the one you prefer the most.

While answering these questions, **I ask you** 

- To consider your answers carefully. If plans like this are executed, you will <u>have to</u> <u>pay</u> the costs.
- To look at <u>one card at a time</u> and within each card to consider all the characteristics of each management plan, as well as <u>all the alternatives</u> (the business as usual scenario, plus plan A and B).
- To remember that the money spent in this management plan <u>cannot be spent on other</u> <u>things</u>, such as your kid's education or paying all your bills (electricity, water, phone, etc.).
- To remember that you can vote for Plan A or B or the "business as usual" option. Some people will vote for Plan A or B because they appreciate the proposed sponge parks. Others will vote for the business as usual because they think the changes are not worth the cost or they do not care about these changes and want to spend their money on other things. Whatever your reasons are, it is OK to vote for Plan A, B or the "business as usual".

[INSTR: Show choice cards 1 to 8 to the respondent and cross out ("X") their selected answer. You must show ONE CARD at the time and input the answers IN ORDER using the cards below. There should be only ONE ANSWER PER CARD. Please remind the respondent to think carefully while answering]

V1.Card1	<b>BAU</b> (river embankments)	Plan A (New sponge park)	Plan B (New sponge park)
Maximum flood inundation depth	+25 cm (50% more than today)	-12 cm (25% less than today)	+0 cm (same as today)
Recreational activities	No new areas to do recreational activities	No new areas to do recreational activities	☆マコー 私学社 私学社 Playing and exercising
Number of types of birds and butterflies	₩ ✓ <sup>0%</sup> increase	0% increase	10% increase
Pest abundance	0%	0% increase	10% increase
Monthly water fee surcharge (per household)	VND 0	<b>VND</b> 50,000	VND 50,000
Your choice	0	0	0

V1.Card2	BAU (river embankments)	Plan A (New sponge park)	Plan B (New sponge park)
Maximum flood inundation depth	+25 cm (50% more than today)	+12 cm (25% more than today)	-12 cm (25%) less than today)
Recreational activities	No new areas to do recreational activities	No new areas to do recreational activities	☆☆ヰ New areas for walking and resting
Number of types of birds and butterflies	0% increase	0% increase	10% increase
Pest abundance	0% increase	0% increase	10% increase
Monthly water fee surcharge (per household)	VND 0	VND 75,000	VND 25,000
Your choice	0	0	0

V1.Card3	BAU (river embankments)	Plan A (New sponge park)	Plan B (New sponge park)
Maximum flood inundation depth	+25 cm (50% more than today)	+12 cm (25% more than today)	+0 cm (same as today)
Recreational activities	No new areas to do recreational activities	☆☆苹 New areas for walking and resting	No new areas to do recreational activities
Number of types of birds and butterflies	0% increase	0% increase	10% increase
Pest abundance	0% increase	0% increase	0% increase
Monthly water fee surcharge (per household)	VND 0	VND 50,000	VND 25,000
Your choice	0	0	0

V1.Card4	<b>BAU</b> (river embankments)	Plan A (New sponge park)	Plan B (New sponge park)
Maximum flood inundation depth	+25 cm (50% more than today)	+12 cm (25% more than today)	+25 cm (50% more than today)
Recreational activities	No new areas to do recreational activities	No new areas to do recreational activities	次 W 戸 弦 子 託 Playing and exercising
Number of types of birds and butterflies	₩ ✓ <sup>0%</sup> increase	0% increase	10% increase
Pest abundance	0%	10% increase	0%
Monthly water fee surcharge (per household)	VND 0	VND 25,000	VND 75,000
Your choice	0	0	0

V1.Card5	BAU (river embankments)	Plan A (New sponge park)	Plan B (New sponge park)
Maximum flood inundation depth	+25 cm (50% more than today)	+25 cm (50% more than today)	+0 cm (same as today)
Recreational activities	No new areas to do recreational activities	☆☆戸 鮎子能 New areas for walking and resting + playing and exercising	No new areas to do recreational activities
Number of types of birds and butterflies	₩ ✓ <sup>0%</sup> increase	10% increase	10% increase
Pest abundance	0%	10% increase	10% increase
Monthly water fee surcharge (per household)	VND 0	VND 75,000	VND 100,000
Your choice	0	0	0

V1.Card6	<b>BAU</b> (river embankments)	Plan A (New sponge park)	Plan B (New sponge park)
Maximum flood inundation depth	+25 cm (50% more than today)	+25 cm (50% more than today)	-12 cm (25% less than today)
Recreational activities	No new areas to do recreational activities	☆w≒ New areas for walking and さぶ託 playing and exercising	À❤≒ New areas for walking and resting
Number of types of birds and butterflies	₩ ✓ 0% increase	0% increase	₩ 🔏 0% increase
Pest abundance	0% increase	0% increase	0% increase
Monthly water fee surcharge (per household)	VND 0	VND 50,000	VND 100,000
Your choice	0	0	0

V1.Card7	BAU (river embankments)	Plan A (New sponge park)	Plan B (New sponge park)
Maximum flood inundation depth	+25 cm (50% more than today)	+12 cm (25% more than today)	+25 cm (50% more than today)
Recreational activities	No new areas to do recreational activities	ネッロー New areas for walking and さえず託 playing and exercising	☆♥苹 New areas for walking and resting
Number of types of birds and butterflies	0% increase	0% increase	10% increase
Pest abundance	0% increase	10% increase	0% increase
Monthly water fee surcharge (per household)	VND 0	VND 100,000	VND 100,000
Your choice	0	0	0

V1.Card8	BAU	Plan A	Plan B
	(river embankments)	(New sponge park)	(New sponge park)
Maximum flood inundation depth	+25 cm (50% more than today)	-12 cm (25% less than today)	+0 cm (same as today)
Recreational activities	No new areas to do recreational activities	☆ ♥ ➡ New areas for walking and さえ ネ 靴 resting + playing and exercising	☆☆苹 New areas for walking and resting
Number of types of birds and butterflies	0%	10%	₩ - € 0%
	increase	increase	increase
Pest abundance	0%	10%	10%
	increase	increase	increase
Monthly water fee surcharge	VND 0	VND	VND
(per household)		75,000	25,000
Your choice	0	0	0

# **11. Indicate how much you agree or disagree with the following statements.**

# [INSTR: Use flashcard H]

		Strongly disagree (-2)	Disagree (-1)	Neutral (0)	Agree (1)	Strongly agree (2)
11.1	My responses to this survey will influence whether sponge parks will be built or not.					
11.2	If the sponge parks are built, I believe I will be charged the fee.					
11.3	I believe sponge parks effectively keereduce flooding.					
11.4	I believe sponge parks are less effective in reducing flooding than traditional river embankments.					
11.5	Can Tho residents will only benefit if there are many sponge parks around the city.					
11.6	The proposed sponge parks will benefit all Can Tho residents equally.					
11.7	I object to paying a surcharge on the water bill for building sponge parks.					
11.8	The government should fund the development of these sponge parks with existing public funds.					
11.9	Instead of paying the surcharge, I would like to contribute with labour time.					
11.10	Can Tho does not need sponge parks.					
11.11	When choosing where to live, I always consider if there are green spaces nearby.					
11.12	When choosing where to live, I always consider if the area is at risk of flooding.					
11.13	I visit local green spaces more often since the COVID-19 lockdown happened.					
11.14	I appreciate the role of local green spaces more since the COVID-19 lockdown happened.					

# **Reducing river flooding in Can Tho**

Flood levels in the city also depend on the way the rivers and land are managed upstream. River embankments built in the An Giang Province raised the banks of the Mekong River to hold more water. This prevents the river from flooding during times of high water and avoids floods upstream. However it means that all the excess water flows from the An Giang Province to low lying coastal cities, such as Can Tho.

To reduce the amount of water flowing downstream, An Giang Province is considering using "controlled embankment breaches". This means that river embankments are opened to allow the excess water to enter agricultural fields in a controlled way. As a result, the water levels are significantly reduced before reaching Can Tho, and the flooding in the city is less severe.

Building the necessary embankment gates in An Giang to divert river water into the fields is expensive. Moreover, farmers must be compensated as these measures flood their fields and affect their harvest. Public funds are not sufficient to cover these expenses.

As Can Tho residents will benefit from these measures, funds will be raised through a surcharge on their monthly water bill. Results of this section of the survey will be passed on to relevant authorities to advise their flood management plans.

- 12. Consider that the upstream "controlled embankment breaches" can lower the inundation depth of Can Tho floods. Would you vote for building these additional measures if they cost your household <u>VND 5,000 for the next 5 years payable as surcharge on your monthly water bill?</u> Note that this payment is <u>independent</u> of the one you considered in the previous cards, which will be used for developing sponge parks inside Can Tho city.
  - □ Yes, I would vote for these measures if they cost my household VND 5,000 (1)
  - $\Box$  No, I would not vote for these measures if they cost my household VND 5,000 (0)

# 13. Indicate how much you agree or disagree with the following statements.

# [INSTR: Use flashcard I]

		Strongly disagree (-2)	Disagree (-1)	Neutral (0)	Agree (1)	Strongly agree (2)
13.1	My response to this question will influence whether controlled embankment breaches are used in the upstream area or not.					
13.2	If controlled embankment breaches are built in the upstream area, I believe that I will be charged VND 5,000 to contribute to this measure.					
13.3	I believe the controlled embankment breaches in the upstream area will reduce floods in Can Tho.					
13.4	I object to paying a surcharge on the water bill to finance the controlled embankment breaches in the upstream area.					

# Part 3: Some information about yourself

This section collects information for statistical purposes, and it helps us better understand your answers. Remember that responses will remain confidential.

14. Are you generally a person who is willing to take risks, or do you try to avoid taking risks? Some examples of risks are making bets, playing the lottery, driving fast. On a scale from 0 to 10, "0" means not at all willing to, and "10" means very willing to.

Not at all willing to take risks							Very willing to take risks			
0	1	2	3	4	5	6	7	8	9	10

#### 15. What is your gender?

 $\Box$  Female (1)

 $\Box$  Male (0)

#### 16. Which year were you born?

- **17.** Including yourself, how many people in each of the following age groups are currently part of your household year-round?
  - Under 18 \_\_\_\_\_ 18 to 59 \_\_\_\_\_ 60 or over \_\_\_\_\_

#### 18. What is the highest level of education that you have completed?

- □ I have no formal qualifications (1)
- $\Box$  Primary education (2)
- $\Box$  Secondary high school (3)
- $\Box$  High school (4)
- □ Colleges and/or Vocational training (5)
- $\Box$  University (6)
- $\Box$  Master's degree or higher (7)

#### 19. What is your main occupation?

- $\Box$  Employed full-time (1)
- $\Box$  Employed part-time (2)
- $\Box$  Self-employed (3)
- $\Box$  Temporarily unemployed (4)
- $\Box$  Unable to work due to sickness or disability (5)
- □ Looking after a home full-time (i.e. housewife) (6)
- $\Box$  Student (7)
- $\Box$  Retired (8)
- □ Other (9) \_\_\_\_\_

#### 20. What is your monthly household income (VND)?

- $\Box$  Up to 2 million VND per month (1)
- □ From over 2 million VND to 4 million VND per month (2)
- □ From over 4 million VND to 8 million VND per month (3)
- □ From over 8 million VND to 12 million VND per month (4)
- $\Box$  More than 12 million VND per month (5)

#### 21. Since the beginning of the Covid-19 pandemic, has your total household income changed?

- $\Box$  Yes, it increased (1)
- $\Box$  Yes, it decreased (2)

 $\Box$  No, it stayed the same (3) [INSTR: if respondent selects this option, skip the next question and move on to question 23]

#### 22. To what extent is this income change due to Covid-19?

- $\Box$  the change is all due to Covid-19 (1)
- $\Box$  the change is mostly due to Covid-19 (2)
- $\Box$  the change is somewhat due to Covid-19 (3)
- $\Box$  the change is not at all due to Covid-19 (4)

#### 23. Do you own or rent the residence you are currently living in?

- $\Box$  Own (1)
- $\Box$  Rent (2)
- □ Other (3) \_\_\_\_\_

# 24. How many years have you been living in Can Tho?

- □ \_\_\_\_\_ years (1)
- $\Box$  All my life (2)
- $\Box$  I don't remember (-99)

Thank you very much for taking the time to answer the questionnaire!