

**HOUSEHOLD SURVEY ON WATER USE FOR ENVIRONMENTAL AND CLIMATE CHANGE MANAGEMENT IN MAURITIUS**

1. Number: .....
2. Name of respondent:.....
3. Address:.....
4. District:.....
5. Telephone number:.....
6. VCA number.....
7. Interviewer name.....

**INSTRUCTION: INTERVIEWER PLEASE COMMUNICATE THE FOLLOWING INFORMATION TO THE RESPONDENT–(HEAD OF HOUSEHOLD)**

Dear respondent

- 1.1. The University of Mauritius is currently conducting a research on water consumption and difficulties associated with water supply in Mauritius. This project is financed by the Global Development Network (GDN) and it aims at finding solutions in relation to effective water use in Mauritius.
- 1.2. In this respect, we would wish to ask you certain question on water consumption in your household so that we can understand better the situation of water. We would need your correct and honest answer. This study aims at searching for ways to raise your welfare and reduce your water problem. Your response will help to situate the problem of water in Mauritius.
- 1.3. This survey is completely anonymous and no information will be revealed to any third party. The data which will be collected from this survey will be aggregated and hence, no respondent will be identified from the information.
- 1.4. Your participation is very important. With this survey, we plan to have effective solutions to manage water for 1.2million inhabitants of Mauritius. We make an earnest request to you to give us some of the precious time.
- 1.5. This survey will take around 25-30 minutes to complete.

8. Are you willing to be interviewed: (*eskioudacorpumoprenou interview*)

Yes	1	No	0
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9. If no, please state reason:

If yes: INTERVIWER PLEASE PROCEED:

**A: GENERAL DWELLING CHARACTERISTICS**

10. Please estimate the number of years since you are living in the house (*depicombien tem ou res dansa la kaszla*).....years
11. Please state types of building which coincides with your house and is connected to your water meter (one water meter only) (*kikalite la kaz*)

		Code
i	Detached house ( <i>detaser</i> )	1
ii	Semi-detached house /block of flats	2
iii	Building designed for one housing unit but crudely sub-divided into smaller units ( <i>enepartidanene grand la kaz</i> )	3
iv	Improvised structure ( <i>ou improvise ene structure upu ou vive</i> )	4
	Other: specify.....	5

12. Please state the number of water meters which exist in that address (please refer to all households within the **same address** or same building (*combiencompteur de leauenadansaladres la*).....

13. Size of house/dwelling: please ask for length and width for the house which is strictly connected to the water meter (ask each floor separately there is more than one floor) (*mopu demand dirmwa grandeur ou la kazki connecter ekoucompteur le leau*)

			In Metre or	In feet
10.1	First floor	Length		
		Width		
		Area		
10.2	Second floor	Length		
		Width		
		Area		
10.3	Third floor	Length		
		Width		
		Area		
10.4	Fourth floor	Length		
		Width		
		Area		

14. State the type of tenure.

Owner	1
Supplied free by employer	2
Supplied free by parents/relatives	3
Supplied free by other.....	4
Rented	5

15. Please state the number of rooms available in your house which is connected to you water meters. (*combine la chamber ouenanadou la kaz*)

		Number
12.1	Bedrooms ( <i>chamber a coucher</i> )	
12.2	Dining room ( <i>salle a manger</i> )	
12.3	Living room	
12.4	Dining/Living room	
12.5	Kitchen ( <i>cuisine</i> )	
12.6	Lobby	
12.7	Closed veranda	
12.8	Open veranda	
12.9	Study room	
12.10	Bathroom	
12.11	Toilet	
12.12	Bathroom/toilet	

16. Please state the number of the following amenities which exists in your house:

		Number		Amenity	Number
1	Refrigerator		6	Air conditioner	
2	Electric shower		7	Motorcycle	
3	Gas shower		8	Car	
4	Washing machine		9	Other vehicles: Van/double cab/lorry/minibus	
5	Dishwashing machine		10		

17. What kind of washing machine do you have?

Top loading	
Front loading	
hot water	
Others, specify .....	

18. Do you grow vegetables or cultivate a plot of land for commercial purpose which uses tap water?

Yes		No	
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19. If yes, please specify size of the cultivated land. ....(please select: feet, meters, acres, others.....)

Amenity	Yes	No
Kitchen/Backyard garden (jarden, potager)		
Lawn (gazon)		
crop (vegetable) field as hobby		
Chicken/ livestock/		

### B: SOCIO-DEMOGRAPHICS CHARACTERISTICS

20. Age: .....

21. If respondent does not want to tell age, please age bracket...

18 to 24 years	1	45 to 54 years	4
25 to 34 years	2	55 to 64 years	5
35 to 44 years	3	Age 65 or older	6

22. Gender

Female	0	Male	1
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23. Education background:

No Formal Education ( <i>pena education</i> )	0	A Level or Equivalent ( <i>HSC ou A level</i> )	5
Incomplete Primary Education ( <i>pan fine complete CPE</i> )	1	Post HSC Diploma ( <i>Diplome apres HSC</i> )	6
Passed CPE/Std VI ( <i>Fine passe CPE</i> )	2	Degree or Equivalent ( <i>Degree</i> )	7
Lower Secondary Incomplete ( <i>pan fine complete SC</i> )	3	Post Graduate Degree or Equivalent ( <i>MSc</i> )	8
SC or equivalent ( <i>SC</i> )	4	Other speficy:	9

24. Marital status

Married/ in a union ( <i>marier or ensemble</i> )	1	Separated ( <i>separer</i> )	4
Widowed ( <i>veuve or vef</i> )	2	Single	5
Divorced ( <i>Divorcer</i> )	3		

25. Age of other household members

Household member age range	No. of persons	Relationship
0-5 years		
6-10 year		
11-15 years		
16 -20 years		
21-30 years		
31-45 year		
46-60 years		
60+		
Total		

26. Do you and your family usually spent the week end out of the house (picnic, family trips, etc, dinner out)

Yes		No	
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27. If yes, please estimate the frequency per month:, , every months, not so often (one week-end every three months)

not so often (one week-end every three months)	One week-end every months	two week-ends per months	every week end
1	2	3	4

28. Employment status ?

<input type="checkbox"/>	1	Manager/Director , owner of shop, businessmen
<input type="checkbox"/>	2	Doctor, Engineer, Accountant, Secondary Teacher
<input type="checkbox"/>	3	Primary Teacher , Nurse, Technician, Sergeant
<input type="checkbox"/>	4	Work in office( secretary, attendant...)
<input type="checkbox"/>	5	Farmer, fishermen, carpenter,
<input type="checkbox"/>	6	Factory worker
<input type="checkbox"/>	7	Armed forces
<input type="checkbox"/>	8	Unemployed
<input type="checkbox"/>	9	Don't work (pensioner, housewife etc.)

**C: WATER CONSUMPTION**

29. Please provide information on the water and waste water bill for the most recent month (*Mo bizinoupapier de leaupli recent kiou fine recevoir*) [INTERVIEWER: PLEASE ASK THE RESPONDENT THE MOST RECENT WATER BILL: Fill water and waste water separately] write NIL if no waste water)

Month (since last year)	Water		Wastewater	
	Use (m <sup>3</sup> )	Bill (Rs)	Use (m <sup>3</sup> )	Bill (Rs)
Write which month.....				

[INTERVIEWER: THE BEST WAY IS TO COLLECT THE WATER BILLS FOR THE FOLLOWING MONTHS)

30. Please provide your water and waste water bill for the following months (*Eskimokapavgagenoupapier de leaupousa ban moisuivant la*)– Summer (INTERVIEWER PLEASE COLLECT AT LEAST ANY TWO MONTHS) – Write NIL if no waste water

Month (since last year)	Water		Wastewater	
	Use (m <sup>3</sup> )	Bill (Rs)	Use (m <sup>3</sup> )	Bill (Rs)
Nov				
Dec				
Jan				
Feb				

31. Please provide your water and waste water bill for two months during the following period – (*Eskimokapavgagenoupapier de leaupousa ban moisuivant la*) Winter (INTERVIEWER PLEASE COLLECT AT LEAST ANY TWO MONTHS)

Month (since last year)	Water		Wastewater	
	Use (m <sup>3</sup> )	Bill (Rs)	Use (m <sup>3</sup> )	Bill (Rs)
May				
Jun				
July				
August				

32. Do you own a water tank: (*eskiouenaene tank de leau*)

Yes		No	
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33. If yes, when did you install the water tank(s)... 1st.....2nd.....3rd.....4th.....

34. If yes, please provide the size of the water tank in terms of water storage capacity: (*ki capacity ou tank*)

Any one of the following	1st	2nd	3rd	4th
MM <sup>3</sup>				
Litres				
Gallons				

35. Please state the price of the water tank? (*combien in koute sa tank la, prend total si ou ena plus kiene – si lontem, don ene estimation prix*)

Rs.....(excluding installing cost)

36. Have you received a subsidy for the water tank? (*eski ou fine recevoir enesubsiddepui l'etat*)

Yes		No	
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37. If yes, please state the amount you have received (*combienou fine recevoir*) Rs .....

38. Please state the cost of water pump (if any) (*sioueneene la pompe, oukapavdirmwa so prix*)Rs.....

39. Please state the cost of installation you have incurred (if any) for both water tank and pump (*combienou payer puinstalsa tank and so la pompe*)

Water tank	
Water pump	

40. Please state the cost of maintenance for the last 12 months (in any) (*sioudepenserlor maintenance, oukapavdircombien*)

Water tank	
Water pump	

41. State whether you have the following water equipment

	Yes	No	If yes, please give purchase price or estimate (Rs)	Capacity in litres or cubic metres
(a) Solar water heater with tank availability	1	0		
(b) Electric water heater availability	1	0		
(c) Gas water heater availability	1	0		
(d) Other water heating availability (e.g use of fuel wood)	1	0		

42. Please state whether you collect rainwater? (*eski ou enaene system pu stoquage de leau*)

Yes	1	No	0
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43. If yes, please state the water storage capacity in litres (*sioui, combien capacite stokage*).....

44. Please specify an estimate of the cost incurred for the collection of rainwater? (*combien in coute ou pu saequipment de leau la*)Rs.....

45. Do you have other sources of water for consumption? E.g rivers, public fountain, lake, well

Yes	1	No	0
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46. If yes, please specify.....

47. Please rate the quality of water you have at home.

Extremely worst	Very bad (cannot drink, cannot use for hygienic purposes)	Bad (not good can manage)	Good	Excellent
1	2	3	4	5

48. To what extent you are satisfied with the water supply facility in your place?

Not satisfied at all	Somewhat satisfied	Neither satisfied nor dissatisfied	satisfied	Very satisfied
1	2	3	4	5

#### WATER SITUATION

49. How many hours per day of water supply do you have?

	Yesterday 45a	Most of the days on May/June 45b	Most of the days in November/December 45c
Day: 6am-6pm			
Night: 6pm-6am			

#### CONTINGENT VALUATION METHOD- WILLINGNESS TO PAY QUESTION

We would wish to ask you about your views on water situation in Mauritius.

50. Please can you rate the degree of awareness you have on each of the following statement on water and climate change.

Please tick as appropriate. (motipu demand ou)

Water crisis and climate change	Not aware at all 1	Have slight knowledge (heard but not quite understand) 2	Have some knowledge on the subject (can understand) 3	Understand the subject well 4	Expert knowledge (understand the science behind) 5
To what extent you are aware that Mauritius is facing a water crisis (many residents do not water on a regular basis)					
To what extent you are aware that climate change is leading to a fall in precipitation in					

Mauritius					
To what extent you are aware that there is a lack of fund to finance reservoir in Mauritius					
To what extent you are aware of water conservation practices					

**51. Are you aware of the following statements on the situation of water in Mauritius**

	No aware at all	Have slight knowledge (heard but not quite understand)	Have some knowledge on the subject (can understand)	Understand the subject well	Expert knowledge (understand the science behind)
To what extent do you agree that the Government of Mauritius should solve the problem of water supply and quality?					
To what extent do you agree that the population has a major role to solve the water problem					
To what extent do you agree that Mauritians should sacrifice some of the income and standard of living so that the next generation may benefit from a sustained water supply					
To what extent would you agree to contribute money or time to harvest water at their residence					

**Contingent Valuation scenario**

A: As you may be aware, every year, the CWA has to restrict water supply especially in December to February because of droughts. Many usages of water such as washing vehicles, pavement or building and water lawns by means of a hosepipe or sprinkler are restricted. The rain falls heavily on Mauritius in great quantities. In spite of this, there is a shortage of water in some seasons and in certain locations on the Island.

*(kuma ou koner, saklaner, CWA bison coupe de leau, surtout dan moi DecemekFevriere, parseki la secheress. Pa kapav servi de leau pu lave vehicle, pavage, batimen, arouz gazon tousa).*

B: Rain falls very unevenly across the island. At present 40% of water is leaked through the distribution system. The main reason is that the pipe system is very old and has not been upgraded for decades. At the same time, the island is beginning to see a decrease in rainfall in general due to climate change. According to the Mauritius Meteorology Services, the effect of global warming would be to reduce annual water by 8%. With an increase in the population and the number of tourists as well as the growing water consumption for agriculture and other economic activities, there will be more difficulties associated with water supply.

*(la pluie tome differamen dan differentlendroit dan ile. Ene peu pre 40% de leauki fine stoquer, perdi kan distribution. Raison principal ce ki ban tuyau bien vier and pan ameliorerdepuideceni. En mem tem, changement climatoquepereduire la pluie. D'apremeteo, la plui pu diminuer par ene peu pre 8% pendent laner. Avec augmentation population, tourists, agriculture and activiteconomique, pu ena pli deman de leau ek pli bukudifficulte pu gagne de leau)*

**52. Is there anything which is not consistent with what you know from the previous statement?**

*(enakitsoskipa pareil ek sa kikoner)*

Yes	1	No	0
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If yes, please explain.....

C: You would agree that even with water tank, low pressure of water makes it difficult to have reliable water. You would realise that water quality is higher when it comes directly from tap and when there are no leakages.

*(ou pu reconnaît kimemavek tank de leau, faute de pressure, kalite de leau affecter. Kalitebuku pli meilleur can de leau fine depi robinet avec pression).*

D: To remedy the above problem, the solution will be to introduce a modern foundation for water resources management on Mauritius. Good water supply depends two main components: first, it is necessary to secure the infrastructure in the form of dams, reservoirs, canals etc and second there is need to upgrade water supply facility, with new pipe network to prevent leakages. Moreover, there is need for maintenance of the infrastructure on a regular basis.

*(Pu rode ene solution lor sa problem de leau la, it important pu introduire enenuva base for gere gel eau. Pu gagne de leau continuellement, ena deux composant : prenier li necessair ou investi lorreservoir, dams, canals, etc ; deziemmen, bizonsanz tuyau to enpes ban fuites. En plis, bizinenaene maintenance san ban infrastructure la)*

E: We are proposing a plan for you to have 24 hours of water service, on a regular, in all months, winter and summer, and with high pressure **at your place**.

- (i) Extend and upgrade the existing reservoirs and dams which are connected to **your house**
- (ii) Upgrade the water supply facility from the reservoir and dams in **your area**.
- (iii) There will also be a continuous maintenance reservoirs and water pipes to ensure the quality of the service **in your area**

The storage of water will be made according to the latest technology, with the state-of-the-art engineering design. Even if there is a period of drought for the year, water will be still available **in your region**.

*(mo pu met ene plan devan ou pu ki ou kapav gagne de leau 24 lor 24, continuellement, durant toute laner, mem en liver ou lete ; ekavek grand pressure **DAN OU REGION** : Plan la ena trois composant :*

- (i) Augment and ameliorer ban reservoir and dam kiconnectorek ou la kaz*
  - (ii) Ameliorer ban tuyeau and ek ban infrastrurepedireservoirjuska kot **OU LA KAZ***
  - (iii) Pu enaene maintenance ban reservoir et ban tuyeau en permanence*
- Stoquege de leau pu frek ban technology pli recent. Mem si ena la secheres, ou pugagne de leau continuellement **DAN OU REGION***

53. Have you understood the plan well: yes .....no.....If no INTERVIEW REPEAT THE D and E.

F When the upgrade of water storage is available, the expenditure must be incurred irrespective of the quantity of water which is being consumed at household level. The financing plan is as follows: a fixed sum of money will be paid by each household every month through the water bill, over and above their current water bill. Of course, you would pay your water bill in relation to water consumption per month as usual.

**(Kan pu implement sa plan sa, bizinfrdepenseqleu soi kiquantitezot servi de leau. Plan financement sa projectceenesomefix par moi kiban famille pu contribuer atravezot bill de leau. Li pu vine au dessus ou payment de leauki ou fr par moi. Sa pu res pareil.**

The money will be collected through your monthly water bill and will be transferred to a **water fund** which will be managed by an institution comprising of international organization, NGOs, and the government. The process of using the fund will be fully transparent.

**Sa Largentla pu gere dan fond par an institution kip u includeorganization international, NGOs and letat. Li pu transparent.**

G If the majority of people are not willing to pay, the plan will not be implemented. **(simajorite famille pa accepter payer, sa project la pa pu implemented)**

However, if the majority of people agree to pay the costs, then all household will pay the same fixed fee in their water bill. **(mai si majorite famille accepter pu contribuer, tous famille pu pay MEM someLargent par moi)**

I want you to think of the plan as if it will be implemented in the near future. Your decision is important. **(reflechi bien lor sa project, kumadir li pu implementer dan le future)**

54. Do you have any question in relation to the plan?.....

55. Would you be willing to contribute for the whole household a fixed sum of money per month to benefit from this plan?  
*(Eskioupucontribuerpusa project la)*

Yes	No
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56. In case you are not willing to pay please indicate the reasons:

1. Because I feel we have enough good quality water to meet current and future needs
2. Because I cannot afford to pay any more for water.
3. Because I believe I am already paying my fair share of the cost for water.
4. Because I do not believe I should have to pay more to have access to good quality water.
5. I do not feel increased bills are an appropriate funding source.



6. Other (please specify).....

Close ended question:

57. Taking into consideration you income and expenditure per month, would you be willing to pay Rs10 per month through your water bill for the supply of water?**Prenant compt ou la revenue mensuel ek ban depense, eski ou pu accepter pu payRs.... pu sa project la**

Yes		No	
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58. If yes , would you wish to pay Rs20?

Yes		No	
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59. If No, would you be willing to pay Rs5 per month?

Yes		No	
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60. How certain or sure are you of your answer?? (Please circle one)

1	2	3	4	5
Not Certain at all	ModeratelyUncertain	Neutral	Certain	VeryCertain

61. Which of your expenses would you reduce in order to contribute towards the plan? (List & check as many that may apply)

- (a) Food (b) Clothing (c) Gasoline /transport (d) Savings (e) From all of them  
 (f) I do not have to decrease any monthly expense (g) Other ( specify) .....  
 (h) I don't know

62. Considering the maximum amount you are willing to pay and the potential decrease in the ability to pay other expenses, would you like to change your willingness to pay answer (open ended)?

Yes		No	
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[IN CASE THE RESPONDENT WISHES TO CHANGE 49-51, PLEASE ADJUST THE ANSWER AND WRITE IT ABOVE]

63. May I ask you what would be your maximum willingness to pay per month?**Ki maximum largent ou pu accepter pu payer par mois ou sa project la.....**

64. Monthly Household Income ( total amount of wages per month for all people working in the family)

Less than Rs 2,000	1	Rs 25,001 – Rs 35,000	6
Rs 2,001 – Rs 5,000	2	Rs 35,001 – Rs 45,000	7
Rs 10,001 – Rs 15,000	3	Rs 45,001 – Rs 60,000	8
Rs 15,001 – Rs 20,000	4	Rs 60,001 – Rs 80 , 000	9
Rs 20,001 – Rs 25,000	5	Rs 80, 000 – Rs120, 000	10
		Rs 120001- Rs200,000	11

65. What is your individual monthly income?

Less than Rs 2,000	1	Rs 25,001 – Rs 35,000	6
Rs 2,001 – Rs 5,000	2	Rs 35,001 – Rs 45,000	7
Rs 10,001 – Rs 15,000	3	Rs 45,001 – Rs 60,000	8
Rs 15,001 – Rs 20,000	4	Rs 60,001 – Rs 80 , 000	9
Rs 20,001 – Rs 25,000	5	Rs 80, 000 – Rs120, 000	10
		Rs 120001- Rs200,000	11

**66.** What is your household consumption expenditure per months? (*ou kapavdir combine ou depenselorconsomation par mois, incluant manger, transport, electricity, pour tour la famille*)

Less than Rs 2,000	1	Rs 25,001 – Rs 35,000	6
Rs 2,001 – Rs 5,000	2	Rs 35,001 – Rs 45,000	7
Rs 10,001 – Rs 15,000	3	Rs 45,001 – Rs 60,000	8
Rs 15,001 – Rs 20,000	4	Rs 60,001 – Rs 80 , 000	9
Rs 20,001 – Rs 25,000	5	Rs 80, 000 – Rs120, 000	10
		Rs 120001- Rs200,000	11

**Interviewer Debriefing Questions**

		Yes	No
<b>67.</b>	Was the person who answered the questions irritated or nervous during the interview?		
<b>68.</b>	Do you think that it was easy for the respondent to answer the questions concerning willingness to pay		
<b>69.</b>	Was the person who answered the questions looking bored or tired during the interview?		

**70.** Are you certain that the interviewee was answering to the questions honestly and truly?

1	2	3	4	5
Not Certain at all	Moderately Uncertain	Neutral	Certain	Very Certain

**71.** Who else was listening while you conducted this interview with the respondent?

Time finished: \_\_\_\_\_ : \_\_\_\_\_