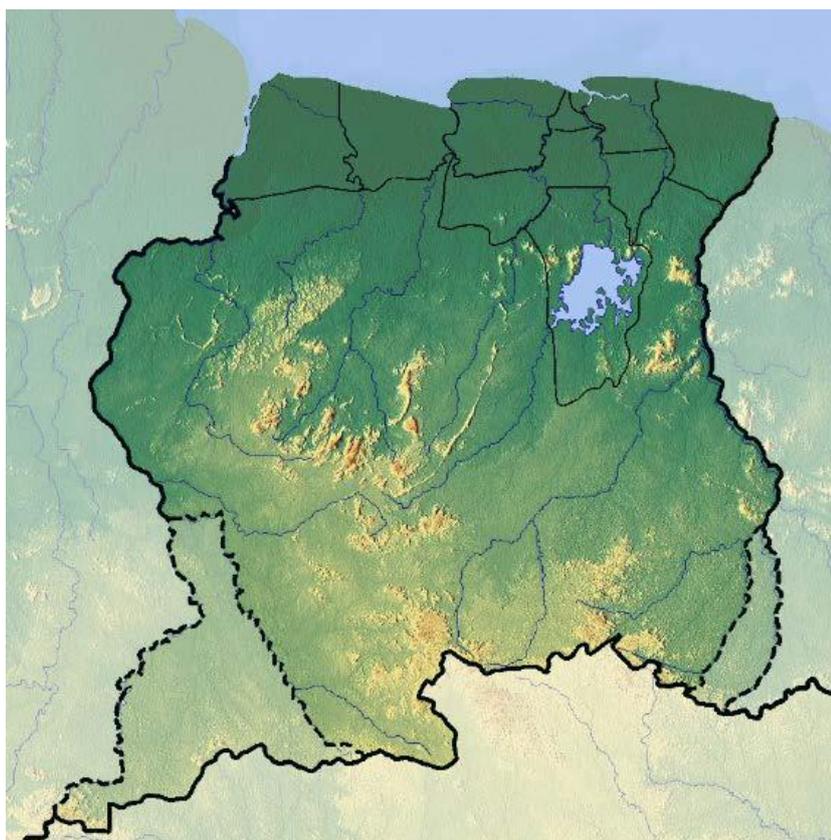


KAP/B SURVEY

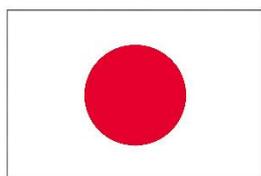
Survey on Knowledge, Attitude, Practices and Behaviour towards Climate Change

Selected districts of Commewijne and Marowijne, Republic of Suriname



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**From
the People of Japan**



*Empowered lives.
Resilient nations.*

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Introduction

a) Context of the KAP/B Survey

The Government of Japan dedicates assistance specifically related to climate change to Small Islands Developing States (SIDS) under the framework of the Partnership for Peace, Development and Prosperity between Japan and the Member States of the Caribbean Community (CARICOM)¹.

The Japan-Caribbean Climate Change Partnership (J-CCCP) aims to support countries in advancing the process of *low-emission risk-resilient development* by improving energy security and integrating medium to long-term planning for adaptation to climate change.

Although Suriname geographically is not a small island state, based on similar development challenges it has joined the ranks of the Small Island Developing States (SIDS). As such, Suriname has committed to successive joint sustainable development strategies. The current strategy, the Samoa Pathway², recognizes the adverse impacts of climate change and sea-level rise on SIDS' efforts to achieve sustainable development as well as to their survival and viability, and addresses economic development, food security, disaster risk reduction (DRR) and ocean management, among other issues.

In cooperation with the United Nations Development Programme (UNDP), the J-CCCP will:

- ❖ Strengthen institutional and technical planning capacities in Suriname to develop comprehensive Nationally Appropriate Mitigation Actions (NAMAs) and National Adaptation Plans (NAPs); based on existing national/sub-national development priorities, strategies and processes, and tailored to specific priorities and needs;
- ❖ Support the implementation of actual technology that is both low-emission and advances climate risk management, including different pilot projects in Suriname;
- ❖ Support the incubation of climate technology into targeted public sectors, private industries, and community groups and enterprises so that green, low-emission climate-resilient technologies can be tested, refined, adopted, and sustained as a practical measure to enhance national, sub-national and community level resilience.

b) Objective of the KAP/B Survey

This national process will be supported by a national communication campaign/strategy on the benefits of mitigation, adaptation and disaster risk management interventions for sustainable towns and communities. To enable efficient targeting of audiences, formulation of key messages and identifying effective channels for communication, the campaign will be based on the results of a so-called KAP/B study: a baseline survey of Knowledge, Attitude, Practices and/or Behavior. The survey explores what people know about the climate they live in, and what changes they perceive. It explores if they see any consequences to those changes; and if they do, whether they feel they have a role to play in addressing those consequences. Furthermore, the survey explores what they actually do in real life.

¹ http://www.mofa.go.jp/region/latin/caricom/mc_1009/psp.html

² The S.A.M.O.A (SIDS Accelerated Modalities of Action) Pathway is the Outcome Document of the Third International Conference of Small Island Developing States in Samoa (1 - 4 September 2014)

Methodology

Demographics of general population of Suriname

a) Population density

The land area of Suriname is 163.820 sq. km (ABS, 2013). Suriname is divided into 10 districts, of which 7 are coastal districts (from West to East): Nickerie, Coronie, Saramacca, Wanica, Paramaribo, Commewijne and Marowijne. South of these are the districts of Para, Brokopondo and Sipaliwini. As of August 2012, Suriname had a total population of 564,454, according to the Surinamese General Bureau of Statistics (ABS 2013).

As of 2004, about 67% of Suriname's total population was concentrated in the capital and 20% in the other coastal districts. The remaining 13% was concentrated in small, mainly tribal communities along rivers of the interior. The overall population density was 3.0 people per km², which makes Suriname a sparsely populated country. From 1989 to 2009, the rate of population growth for Suriname has remained fairly constant between 1.0% and 1.5% (MICS report 2009).

Today, the population is still largely concentrated in the district of Paramaribo (240, 924) but this concentration has decreased to 43%, in favour of neighbouring districts.

b) Population diversity

Suriname's colonial history has played a major role in the multi-ethnic composition of its population. Until the abolition of slavery in 1863, Western Europeans imported slaves from the west coast of Africa. Later, contract laborers were attracted from India, Indonesia and China to work on plantations. Suriname's population consists of the following ethnic groups: Indigenous Peoples (natives), Maroons (descendants of runaway slaves), Creoles (of African or mixed descent), Hindustanis (from the Indian sub-continent), Javanese (from Indonesia), Chinese, Lebanese, Brazilians, descendants of European settlers and mixes among these ethnic groups.

A wide diversity of religions and traditions is practiced. In 2012, Christianity continues to be the largest in numbers (262,320), followed by Hinduism (120,623) and Islam (75,053).

The official language, Dutch, is learned in school and is a second or even third language to many people, as most ethnic groups use their mother language. Sranang Tongo, the lingua franca, is more widely spoken. In general it can be stated that, the further away from the capital, the more people will be fluent mostly in their own language and not necessarily in Sranang Tongo or Dutch.

c) Including Indigenous and Tribal Peoples

For any communication campaign to be inclusive of the rural interior, it is important to note that Suriname is home to four distinct Indigenous Peoples (Kaliña, Lokono, Trio and associated peoples, and Wayana) comprising up to five percent (5%) of the population. It is also home to six Tribal Peoples (known as Maroons) – Aucaner or N'djuka, Saramaka, Paramaka, Aluku, Kwinti and Matawai – totaling around fifteen percent (15%) of the population (FPP, 2007). Most of these peoples speak their own languages.

d) Sample selected of 2 districts

The low population density combined with the impressive diversity of Suriname make it challenging to cover the whole nation with a KAP/B survey. To make the sample inclusive of both rural and urban areas within the given limits of budget and time, it was decided to select 2 districts with distinct characteristics. At least one district had to include representatives from both Indigenous and Tribal Peoples.

e) District 1: Commewijne

The coastal district of *Commewijne* is partly rural, and still has isolated communities (particularly on the right bank of the Commewijne River which is only reachable by small boat). The population of the district is composed of different ethnic and cultural groups, with a majority of people of Hindustani and Javanese descent.

Being close to the capital of Paramaribo, the district experiences urbanisation and population growth at a quickened pace.

Commewijne is comprised of 6 ressorts as shown in the map. The table underneath shows the population per ressort.

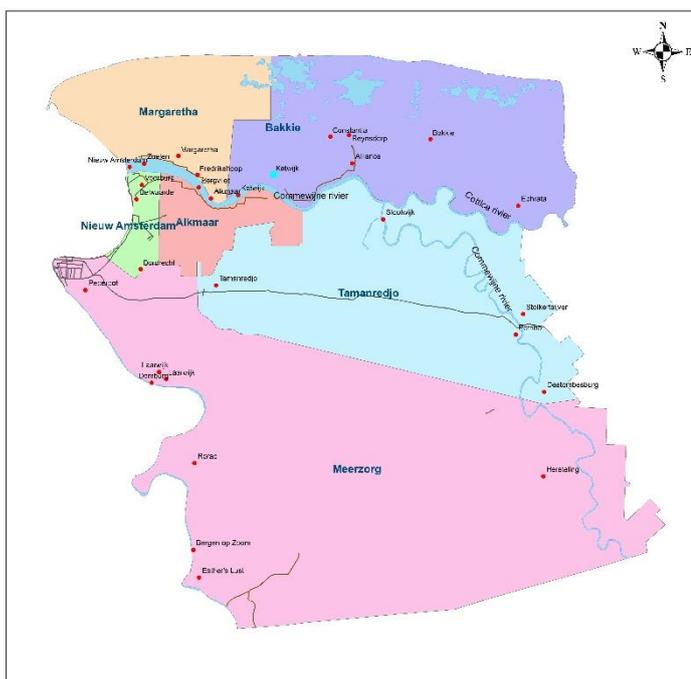


Table Census 2012 summary of table 9.34 t/m table 9.39

Ressorts	Number of residents	Male	Female
Meerzorg	12,405	6,411	5,994
Tamanredjo	6,601	3,387	3,214
Nieuw Amsterdam	5,650	3,026	2,624
Alkmaar	5,561	2,859	2,702
Margrita	756	417	339
Bakkie	447	242	205
Total	31,420	16,342	15,078

f) Sampling process for Commewijne

The total sample for 2 districts consists of 304 households. Regarding the differences in population size, 177 households from Commewijne and 127 from Marowijne were sampled.

To do justice to the geographical spreading, in cooperation with local authorities all ressorts were divided up in different spatial areas. Per area, random clusters of 10-12 households each were designated, usually from one main road and side streets. Interviewers simply started with the first house in the street, and worked their way up from there. Below is the division over the ressorts:

Number of households interviewed per 2 ressorts

Meerzorg/Tamanredjo	75
Nieuw-Amsterdam/Alkmaar	76
Margrita/Bakkie	26
Total households interviewed	177

g) District 2: Marowijne

The neighbouring district of Marowijne (east of Commewijne) is also coastal, and is the border district with French Guyana. As it has many Maroon and Indigenous communities living alongside the rivers (as shown in the map) it is considered rural interior as well. Marowijne is also comprised of 6 ressorts. Moengo and Albina are the most urban; Moengo because it was home to a multinational mining industry, and Albina because it is the border city to both French Guyana, and gold mining areas down river. Moengo Tapu and Patamacca are both home to different Maroon communities, while Galibi is home to two Indigenous communities.

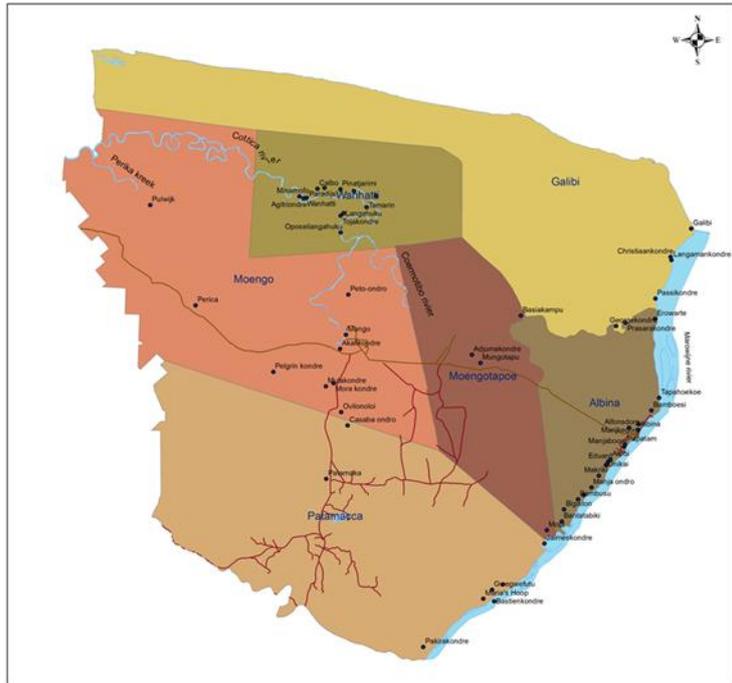


Table Census 2012 summary of 9.40 t/m 9.45

Ressorts	Number of residents	Male	Female
Moengo	10834	5278	5556
Wanhatti	466	217	249
Galibi	741	398	343
Moengo tapu	579	300	279
Albina	5247	2643	2604
Patamacca	427	213	214
Total	18294	9049	9245

h) Sampling process for Marowijne

To do justice to the diverse characteristics of Marowijne it was decided to sample from one urban ressort, one rural ressort characterized by Maroon inhabitants, and one rural ressort characterized by Indigenous inhabitants. Albina and surrounding communities was divided into 7 clusters of 10-12 households. For Patamacca and Galibi, only 2 clusters of 12-13 households were made. The division was thus:

Number of households interviewed per ressort	
Albina (urban)	76
Patamacca (Maroon)	26
Galibi (Indigenous)	25
Total of households interviewed	127

Methodology II: research questions and tools

a) Main research questions

The KAP/B study has to feed into a communication strategy on the benefits of mitigation, adaptation and disaster risk management interventions for sustainable towns and communities. Therefore, the main research questions are as follows:

- I. Are people aware of climate change?
- II. Are people aware of the impact of climate change on their living environment?
- III. Are people willing and able to play a part in mitigation of, and/or adaptation towards this impact?
- IV. Through what communication channels could people best be reached?

These main research questions can then be operationalized as follows:

- I. *Are people aware of climate change?*
 - I. Are people aware of normal weather conditions (seasons, precipitation, and wind)?
 - II. Are people aware of a change in normal weather conditions?
 - III. Do people know and understand the concept of climate change: what it is, main causes and consequences?
- II. *Are people aware of the impact of climate change on their living environment?*
 - I. Have people witnessed extreme weather conditions in the history of their community?
 - II. Have people witnessed other extreme circumstances/ natural disasters?
 - III. Do people see any link between those extreme events and climate change?
 - IV. Do people worry about the pollution of their environment?

III. *Are people willing and able to play a part in mitigation of, and/or adaptation towards this impact?*

- I. Do people feel they could do something about climate change? If yes, what? If not, why not?
- II. Do people feel they could do something about the consequences of climate change? If yes, what? If not, why not?
- III. What do people do in practice? (use of land, chemicals, WASH)

IV. *Through what communication channels could people best be reached?*

- I. How do people usually receive information?
- II. What are their affiliations in terms of culture, religion, community activities?

b) Research Tools

These research questions were further operationalized through a 40 questions semi-structured questionnaire³. To get respondents into a positive mindset, the questionnaire was introduced with some questions about what they like about their home environment, using the framework of

³ The complete questionnaire with structured answers in Dutch is attached as Annex I

Appreciative Inquiry (AI). For the questions on what people actually do, the questionnaire had instructions for the interviewers to also use observation as to verify the answers from respondents (use the toilet, ask for the place where waste is burned/buried). Each team of 4 interviewers was headed by a coordinator. The coordinator was in charge of open interviews with key persons, such as local authorities. The coordinator was also tasked with general observation in the community, to provide context to the answers to the questionnaire (locate rivers/creeks, collective facilities).

Preparation

Interviewers with field experience and language skills relevant to selected districts were recruited through diverse networks. Participation in a preparatory teach-in was mandatory for each interviewer. The teach-in was designed to :1) provide the interviewers with basic knowledge about climate change; 2) test the questionnaire by simulating interviews with each other; and 3) emphasize the nature of the research and the need to get the feelings and thoughts of the respondents, rather than the “correct” answers. The interviewers were then divided up in teams to work designated clusters.

Target group

Per resort clusters of 10 households were randomly visited. Two criteria were set for respondents to participate: 1) having lived in the district for at least 6 months. This criterion is based on the assumption that one would need to live somewhere at least for 6 months to be aware of the specifics of that place; 2) be at least 15 years old. This criterion is based on the assumption that most youth under the age of 15 would learn about climate change in school. There is no maximum age limit as we would like to capture traditional knowledge and cultural concepts. We assumed elderly respondents would be able to contribute specifically to this part.

To have an idea of peoples living and migration patterns, the introduction did, apart from the age and sex questions, also include questions on the time per year actually spent in the district.

Introduction section

1. Age
2. Sex
3. For how long have you been living in this district?
- 4.a How many months a year do you live in this district?
- 4.b in which other places do you live?
- 4.c What is the reason you have different places to live?

Appreciative Inquiry (AI) section

5. What makes this a nice place to live?
6. What do you miss when you are not here?
7. How did you get to live here?

Research Questions Operationalized

A *Can people indicate normal weather conditions?*

- 8.a When does the long rain season normally start?
- 8.b Is there anything special signaling the start of this season?
- 8.c When does the long rain season normally end?
- 9.a When does the long dry season normally start?
- 9.b Is there anything special signaling the start of this season?
- 9.c When does the long dry season normally end?
- 10.a When does the short rain season normally start?
- 10.b Is there anything special signaling the start of this season?
- 10.c When does the short rain season normally end?
- 11.a When does the short dry season normally start?
- 11.b Is there anything special signaling the start of this season?
- 11.c When does the short dry season normally end?
- 12.a In the long rain season, does it normally rain every day?
- 12.b In the long rainy season, does it normally rain the whole day?
- 12.c How can you see it has been raining heavily?
- 13.a In the long dry season, is it dry every day?
- 13.b How can you see the weather has been really dry?
- 14.a Does the sibibusi occur in this district? [*Heavy rain associated with 'washing the forest clean'*]
- 14.b In what season does the *sibibusi* occur?
- 14.c What damage does it normally do?

B *Can people indicate a change from normal weather conditions?*

- 15.a Do you know of events of extreme weather conditions in the history of your community?
- 15.b What happened?
- 15.c When did it happen?
- 15.d What were the consequences for the community?
- 15.e How did the community deal with this?
- 16.a Have you yourself experienced weather circumstances you considered extreme?
- 16.b When did this happen?
- 16.c Did this have an impact on your life? Did it cause you problems?

16.d how did you respond to those problems?

16.e How would you prevent those problems in the future?

[Physically; health problems like diarrhea, mosquito related diseases, respiratory infections]

[Material: damage on or loss of collective infrastructure, house, goods]

[Social: isolation because of difficult transportation/other?]:

[Spiritual: sacred places. Burial grounds/other]

[Livelihoods: food security, possible to farm, fish, hunt, gather, mine; travel to work, other?]

17.a Have you experienced other extreme circumstances/ natural disasters?

17.b What happened?

17.c When did this happen?

Bad harvest? Pandemics, plagues? Mercury poisoning? Declining quality of water? Declining quality of fish? Other?

17.d Do you see any kind of link between weather conditions and other extreme circumstances?

17.e Do you see any other causes for these extreme conditions?

C *Do people understand the scientific concept of climate change?*

18.a Do you know the term “climate change” or “global warming” stands for?

18.b Can you describe the process in your own words/your own language?

18.c What, to your opinion, is the main cause of climate change?

18.d What could you do about the causes of climate change?

18.f Can you list some of the consequences of climate change?

18.g Is there something you could do about the consequences of climate change?

D. *what do people do in practice?*

Practices and/or Behavior [combination of questionnaire, observation and action research]

19.a From what source does your household obtain drinking water?

19.b Throughout the year, is there sufficient drinking water available?

19.c Do you use anything to purify your drinking water?

20.a From what source does your household obtain water for bathing, laundry and so on?

20.b Throughout the year, is there sufficient water available for bathing, laundry and so on?

- 21 where do you discharge of your waste water (grey)?
- 22.a What kind of toilet does this household use?
- 22.b If a flush toilet, where does it discharge its waste water (black)?
- 23.a Do you dispose of all of your waste together (everything in 1 bag or on 1 heap)
- 23.b If yes: How do you dispose of your waste?
- 23.c If no: Please indicate per type of waste how you dispose of it
- 24 What kind of fuel does your household use to cook?
- 25.a Does the use of nature contribute (at least partly) to the income of your household?
- 25.b In what way does your household generate income from nature? [agriculture, hunting, fishing, agroforestry, husbandry, mining, agro-industry, other]
- 25.c What products you use in agriculture and husbandry [chemical versus traditional]

E Are people willing and able to change behavior that is not sustainable?

- 26.a Do you worry about the pollution of the environment (air, water, bottom)?
- 26.b About what do you worry the most?
- 27.a Could you do something (more) against the pollution of the environment?
- 27.b If no, why not?
- 27.c If yes, what could you do (more)?
- 27.d What are the reasons you are not doing this as yet?
- 28.a Could your community do something (more) about it?
- 28.b If no, why not?
- 28.c If yes, what could they do (more)?
- 29.a Could the government do something (more) about it?
- 29.b If no, why not?
- 29.c If yes, what could they do (more)?

F. Through what communication channels could people best be reached?

- 30 Through what source do you usually get your information?
- 31 Regarding the weather and the environment, on what topic would you like to have more information?
- 32 Which media channel is most favoured in this village/ community? What sort of media channel, and which ones (names of radio stations and so on)?

- 33 What other methods are used in your community to convey information?
- 34 What is your favorite kind of music? Band?
- 35 Are there any entertainment groups active in your community?
- 36 Are there any youth/women groups active in the community?
- 37 Do you identify to an ethnical group? If yes, which one?
- 38 Which language you speak most often? In what situation? Can you express your feelings and thoughts well in this language? Can you explain complicated things in this language? Can you read this language? Write this language?
- 39 What is your second language? Can you express your feelings and thoughts well in this language? Can you explain complicated things in this language? Can you read this language? Write this language?
- 40 Do you identify with a certain belief system? If yes, which one?

Main findings

Respondents according to sex and age

		Frequency	Percent
Valid	15-25	56	18.4
	26-35	75	24.7
	36-45	49	16.1
	46-55	63	20.7
	> 56	61	20.1
	Total		304

		Frequency	Percent
Valid	Man	134	44.1
	Vrouw	170	55.9
	Total	304	100.0

The sample shows adequate representation of the different age groups. For gender, women are only slightly overrepresented (with 6 %).

Relation with place of residence

Most of respondents (95 %) have lived in the district where they are residing now for 10 years or longer. Most of respondents (95%) are living there permanently, 12 months a year. This is surprising, as Suriname knows a lot of internal migration, mainly because of the centralization of industries and services in the capital. From this sample however, only 1.4% (4) indicates to also live in other places for work or education; only 2.6 % (8) indicates they also live in other places because of their partner and/or family.

More than half of the respondents (53%) is born in their place of residence. One fifth (20.7%) moved there because of their partner. Almost a quarter (12.8%) of respondents moved with, or back to parents and other family. This might also have an economic aspect; a small group (4.6%) has moved because of housing problems in the city, as opposed to having property (inherited or bought) in their place of residence.

When asked what they appreciate about their place of residence (multiple answers possible), respondents mention the *sociability of family, friends and neighbours* (62.9%) most frequently; immediately followed by *peace and quiet* (62.8%), with *safety and social control* (48%) after that. Next to social factors, respondents appreciate specific things about their environment, such as *nature related activities* like hunting, fishing, growing one's own food (36.8%); *nature* itself, mentioning elements as wind, river, forest, beach (28.9%) and *space* (22 %).

Respondents living in rural areas thus put a clear value on the benefits their living environments provides them with.

A Knowledge of and perceptions on normal weather conditions

In order to observe changes in the climate, one would have to be aware of what constitute normal weather conditions. Suriname experiences two rain seasons; a major rain season when most of the country receives 250-400mm per month between May and July (*Grote Regentijd*), and a minor rain season bringing around 150-200mm per month in November to January (*Kleine Regentijd*).

When asked in what month the major rain season normally is supposed to start, 42.8% of respondents answered correctly (April/May). More than one third did not know at all (35.9%) while the rest (21.3%) answered incorrectly. When asked whether any specific event or occurrence (apart from the obvious rain) signaled the start of the major rain season for them, more than half of respondents answered negatively (54.6%). Some respondents take their cue from the sky (10.5%): strong wind, dark clouds, a ring around the moon and the sun going North. Other cues observed from nature are sounds of frogs, blossoming of trees (*mira udu* or *Triplaris Surinamensis*), and appearance of certain insects and fish (8.5%). Some relate the start of the season to activities such as planting rice and urdi (4.3%). Some respondents claim the seasons have changed in such a way that their knowledge of them is not relevant anymore (5.3%).

More than half of respondents place the start of the major dry season correctly in July/August (51.7%). One third did not know at all (33.9%) while the rest (14.4%) answered incorrectly. When asked whether any specific event or occurrence (apart from the obvious dryness and heat) signaled the start of the major dry season for them, more than half of respondents answered negatively (53.0%). Cues from nature correctly mentioned by respondents are the yellow blossoms of the greenheart tree, the 'helicopters' of the antwood tree (*mira udu*)⁴ and the appearance of yellow butterflies (15.1%).

Only one third of respondents (33.9%) place the start of the short rainy season correctly in November/December. Almost half did not know at all (47.7%) and the rest (18.4%) answered incorrectly. To three quarters of respondents (74.7%) no specific event signaled the start of the major dry season for them. Only 7.9% of respondents takes cues from nature, like the appearance of green butterflies, and the river turning from salt water in freshwater again⁵. A very small group (2.6%) relates the start of the short rainy season with social and economic activities (first celebrating Divali and then planting rice).

The start of the short dry season is correctly placed in January/February by 28.7% of respondents. More than half of the respondents (51.6%) do not know at all and the rest (19.7%) answers incorrectly. The majority of respondents (83.8%) have no specific event or occurrence that signals the start of this season for them. A small group (3.9%) takes it cues from nature, such as the falling of a certain fruit (*awara* or *Astrocaryum vulgare*) and the return of butterflies. An even smaller group (1.6%) refers to economic activity like the clearing of agricultural plots.

Floods are often associated with climate change. However, in the major rain season it is not unusual for streets and plots to be inundated. In urban settings this often has to do with lacking maintenance of water works. In rural settings, this is associated with water level in rivers rising. We therefore asked respondents how they notice the peak of the major rain season.

⁴ The brown seeds, small square nuts, have wings. When the seeds of this tree fall they look like many small helicopters gyrating to earth.

⁵ At the estuaries of both the Commewijne River and the Marowijne River

More than half of the respondents (53.3%) observed the rise of water levels in rivers and canals, while more than a quarter (27.3%) reported streets inundated. A considerable group of respondents (39.5%) even experience flooding of their yards and houses. Almost a quarter of respondents (23.4%) witness flooding of their agricultural plots (rural areas). Some respondents (4.6%) complain about unhygienic situations due to clogged ducts, such as dirty water in the street, dirt being washed into their yard, and wells flooded with dirty water. Erosion (sand being washed away) is also mentioned by 1% of respondents. Some respondents are happy with the abundance of water as it fills their water tanks and it pushes the salt water back⁶ (3%).

We also asked how respondents notice the peak of the major dry season. The majority of respondents (61.5%) observe drying out of the soil ('cracks') and dying of plants. They see the water level in creeks and canals fall (30.9%) and dust and sand storms occur (43.8%). Some respondents report the incidence of fires (5.9%). The heat of the sun is such that it wears you down and makes it almost impossible to work outside (12.2%). Some respondents (3.6%) also report dried out wells and empty water tanks. Some respondents (1.6%) also reflect on the economic impact of drought (prices for vegetables going up, and no fishing possible because of dried out swamps).

Finally, for normal weather conditions, we asked respondents about the occurrence of the *sibibusi* (torrential rain accompanied by strong wind) in their district. More than half of respondents (51.3%) confirmed the occurrence of *sibibusi* in their district of residence. However, only 24.0% of respondents indicated the occurrence of the *sibibusi* correctly in the major rain season.

The majority of respondents reported damage done by *sibibusi*; to agricultural plots (13.8%), to houses (25.7%), and other damage such as fallen trees and electric poles (16.4%).

⁶ Especially the district of Commewijne suffers from salination of soil and groundwater, negatively impacting agriculture and causing a lack of freshwater

B Knowledge of and perceptions on changes from normal weather conditions

We asked respondents if they know of events of extreme weather conditions in the history of their community and if yes, what they were and when they occurred. Only 8.9% of respondents could confirm. They reported cases of extreme drought (5.6%); cases of extreme rainfall (8.5%); cases of severe storm (15.2%); cases of thunderstorm (5.6%) and incidental cases of earthquakes, sudden vortexes in the river and sibilus (3.6%).

When asked for consequences of these events, respondents reported social isolation (impossible to leave the village by boat (1.6%), lost harvest (6.6%), lack of drinking water (4.9%), houses and other buildings destroyed (19.1%). Another 10.2 % of respondents mention diverse consequences such as boats of fishermen destroyed, power outage and fear within the community.

Respondents have trouble remembering /recounting how their community dealt with these consequences in the past. On recent events (flooding of Marowijne in 2006 and 2008, and recurring severe storms in Commewijne in 2011-2016) 3.9% reflect people helped themselves; 6.25% reflect people in the community helped each other; and 6.9% mention help from outside (media, national government, the Districts Commissioner and the National Centre for Disaster Management NCCR).

A mere 0.9% indicate that prevention measures have been taken (alertness, improved roofing, and raised dikes). Other respondents talk about either accepting and/or adapting.

When asked whether respondents themselves have experienced extreme weather circumstances, over a quarter (27.6%) confirm. Only 7.6% find this had an impact on their lives: 1.3% record impact on their health; 4.6% on their property; 0.3% on their social life; 2.6% on their livelihood; and 1% on infrastructure (school not accessible, no exams).

When asked how one could prevent these problems in the future, an overwhelming majority (98-99%) feels there is nothing you can do “because it is nature”. Single respondents offer the following prevention strategies:

health problems related to water(diarrhea, sore eye)	%	Damage to property due to severe winds/thunderstorms		Loss of livelihood due to flooding	
Buy bottled water / water from water truck	0.6	Learn about wind directions and build your house accordingly to prevent damage to property	0.3	Cleaning of gutters to prevent floods	0.6
Buy water tanks	0.6	Fasten roofing with bigger and better nails	1.2	Installing water pump to prevent floods/draughts to impact on livelihood (agriculture)	0.3
		Use better building materials	0.6	Involve local authorities	0.3
		Plant more trees	0.3		
		Unplug telephone/modem	0.3		

One respondent suggests there should be more information and awareness raising on prevention and adaptation.

Furthermore, we asked respondents if they had experienced any other extreme circumstances / natural disasters. Out of 12.8% of respondents responding positively, 3.3% indicate failed harvest; 2.6% indicate pests (mosquitoes, flies, grass lice and beetles); 0.9% indicate a decrease in fish (dead fish, sick fish, and overfishing by fishermen from Paramaribo and French Guyana); 4.3% indicate pandemics (flu, dengue, chikungunya and zika).

We then asked if respondents see any kind of link between weather conditions and other extreme circumstances as described by them. Only 5.9% of respondents saw links. Only 1.6% correctly link rain to mosquitoes as vector for dengue, chikungunya and zika. A causality is noticed by 1.9% between the change in the seasons, causing extreme drought, causing fish to die and harvest to fail.

When asked for possible other causes, 2.0% of respondents also mention environmental pollution, specifying the use of mercury.

C understanding of the scientific concept of climate change

We asked respondents if they know what the term “climate change” or “global warming” stands for. And if yes, if they could describe the process in their own words /language.

The majority of respondents (57.9%) do not know what either “climate change” or “global warming” stands for. Out of the 42.1% that responded with yes, came the following descriptions:

Description of climate change in the words of respondents	%
The weather / nature has changed	9.2
The sun shines fiercely / temperature becomes extremely hot	7.9
The seasons don't 'fit' anymore; they last too long, so extreme rain and extreme drought and heat	13.5
Damage of the ozone layer / creation of greenhouse gases / factories / carbon monoxide	5.3
Cutting of trees and shrubs	0.6
Humans being stubborn, treating the earth badly	2.0
Other: VS and China creating greenhouse gases and nuclear weapons	0.3
Other: it's the end of the world	0.3

We asked the 42.1% that responded with yes if they also knew the main **cause** of climate change. 9.5% of respondents indicates to know what climate change is, but not what causes it. The other respondents (32.6%) came up with multiple answers, as shown in the table underneath:

Perceptions on causes of climate change (multiple answers)	%
pollution in general	5.3
exhaust gases from cars	1.2
smoke from factories	3.0
aerosol gases and other chemicals	4.3
human greed and impatience; experimenting with rockets, bombs, going into space; putting the earth out of balance	6.3
wrath of God / Allah	3.0
ozone layer is damaged	7.9
deforestation	3.6
burning of forest (slash and burn)	0.6
burning of waste	3.0
mining, destruction of the earth	0.3
Melting of icecaps, rising of sea level	0.6

Respondents feel that we as humankind are responsible; and see climate change as a consequence of the behavior of our species. Some of the respondents view our wrongdoings not just as the actual polluting that we do, but our whole way of life. Some respondents put the blame specifically with a certain group with a certain behavior: the scientists who keep on experimenting; young people who are impatient and want everything so fast; white people who use bad things; tourists who don't observe rules on menstruation (taboo). Respondents who indicate the wrath of God / Allah do this in two manners. Some relate it very clearly to the way we treat the earth (“God created the ozone layer to protect us and we destroy it”); others relate it to punishment for the bad things we do in general (as the pests and plagues from the Bible).

Furthermore, we asked respondents what they could do about these causes.

Attitude on what you can do about the causes of climate change	%
Nothing I can do; I am just one person; only God can do something	81.6%
No more burning of waste, plastic and such	4.3
Try to make other people aware, talk more	2.0
Put solar energy	0.6
Keep yard clean, no more throwing things out of the car	0.6
Write to government, talk to resort council about measures against people burning waste	0.6

Although we asked respondents what they as an individual could do, many referred in their answers to what they thought government or other people should do. Since specific questions about the role of government are part of Block E, these answers are not processed here.

Last but not least, we also asked respondents (37.5%) if they could name 3 consequences of global warming in their own words. Percentages indicate the frequency of the topic being mentioned (as people gave multiple answers).

Awareness of consequences of global warming	%
Sickness (sun allergy, skin cancer; respiratory problems)	4.3
Seasons further out of control, extreme heat, extreme rain, more thunderstorms	9.5
Plants and animals dying	4.3
Sea level rise, loss of land, flooding, turbid water upsetting fishery	4.3

D Practices and Behaviour regarding Water, Sanitation, Hygiene and Environment

Water and Sanitation

We asked respondents for the source of their drinking water (multiple answers possible). Almost half of respondents (49.3%) have access to piped water, while 4.3% have it delivered by water truck. The majority of respondents (58.9%) are using rainwater. Furthermore, 11.6 % are using a well, while 4% of respondents indicate creeks or river as their source. Almost 3 out of 4 respondents (72.7%) indicate to have sufficient drinking water all year through, while more than 1 out of 4 (27.3%) indicates a lack of drinking water. Almost 1 out of 3 respondents (31.3%) uses a method to purify the water further.

Three out of 4 respondents (75%) indicate they have a flush toilet, while 24.3% indicate they have a latrine (0.6% missing). In general (75.3%), respondents indicate the toilet flushes into a septic tank.

Waste

The majority of respondents (77.6%) indicate they dispose of all their waste assembled. Waste mostly gets collected by the garbage truck (66.8%), while some respondents (1.6%) bring it to a landfill. Otherwise, respondents burn (14.5%) or bury (1.3%) their waste. Some respondents (2%) say they dump their waste someplace.

A smaller group (21.7%) indicate they separate their waste. They mention recycling or re-using of plastic bottles; using kitchen and garden waste to feed animals or make compost; and re-use used motor oil to protect wood against termites.

Oil used in the kitchen is either flushed through the sink or toilet, or thrown in the yard or into the gutter. Not one respondent mentions the use of a grease pit or trap.

Fuel used for cooking

Although almost all respondents (93.8%) indicate to use a gas cylinder for cooking, they also indicate the use of wood (28%) and charcoal (6.9%). A small group (2.3%) indicates the use of an electrical stove. It can be assumed that economic efficiency plays a role here. In some households it could be observed that food for the family was cooked in the house on the stove, while food for the chicken was cooked outside on a wood fire. In the rural interior gas cylinders are more expensive as transport costs are high. It can be observed that people cook with gas as long as it lasts; then transfer to wood.

Economic use of the environment

Respondents were asked if the use of nature contributes at least partly to the income of their household, as shown in the table below.

agriculture	horticulture	Agro-industry	husbandry	poultry	fishery	Wood logging	hunting
14.1	14.1	3.6	2.3	1.6	12.8	0.3	7.2

Respondents active in agriculture and horticulture were asked how they cope with insects, fungus and plant diseases.

Chemical approach

Carate, Gramoxone, Glyphosaat and Malathion are the names most mentioned by respondents who use pesticides and herbicides (12.8%). To promote growth of plants, 5.3% reports using fertilizer (NPK or *blauwe korrel*).

Non-chemical approach

To prepare the soil for agriculture, 14.4% of respondents indicate the traditional method of slash and burn (agricultural plots). A smaller group (8.5%) indicates digging out the soil, some also refer to the use of manure. This group also indicates manual maintenance to control weed. They indicate the use of neem (water or paste) or soap water to control insects. Respondents indicate they are seldom confronted with plant diseases, as they rotate different crops. If they are confronted with plant diseases they either let nature solve it, or they take out the sick plants and grow other ones. To promote plant growth, they use black soil, manure from chicken or cow and compost.

E are people willing and able to make behavioral changes towards sustainability?

Asked whether they have concerns about the pollution of the environment, 70.1% of respondents says yes, as opposed to 29.6% of respondents who are not concerned (0.3% not applicable). They were then asked to specify those concerns, with multiple answers possible, as shown in the table below.

Specific concerns about environmental pollution	freq	%
Waste dumped everywhere	16	5.3
Pollution of beach endangers sea turtles	11	3.6
Dangers of burning waste	24	7.9
No specific concerns	100	32.9
Pollution of the soil	20	6.6
Pollution of water	44	14.5
Sicknesses as a consequence of pollution	10	3.3
Getting progressively worse of pollution	6	2.0
Unhygienic living environment	9	3.0
Plastic bottles and other plastics dumped everywhere	24	7.9
Air pollution	19	6.3
Lack of clean drinking water	4	1.3
Environmental pollution in general	15	4.9

More than half of the respondents (53.6%) do not feel they could do more against environmental pollution, mostly because they cannot do it on their own and other people do not want to contribute (18.8%). Some indicate they already do enough (3.3%), while others indicate it is not a problem in their community (3.6%). Some respondents mention a lack of time and/or resources (2.0%) while others state they do not have the authority nor the position (3.0%). A substantial group (14.1%) do not know what or how to do (some emphasizing they did not go to school). A small group state they just don't care (2.0%).

Action on individual level

Less than half of the respondents (44.7%) feel they could do more against environmental pollution. When probed further, only a small group actually talk about what they themselves could do, but indicate what other members of community or authorities should do. Strategies to do more themselves include: to sort waste into what to burn and what to recycle; start in my own home with my own children; address and warn people, involve authorities if necessary; keep a bag in my car for waste; stop burning plastic and tires; stop using chemicals; consequently recycle plastic bottles; keep my environment clean; make other people aware; start a project for garbage cans; give my support to information- and awareness campaigns.

Action on community level

More than half of the respondents (53.0%) feel the community could do more as opposed to 44.7% of respondents who do not agree (2.3 missing). Suggested strategies include: find a collective solution for bulky waste; look for possibilities for a collective oven to burn waste; make efforts for a landfill; local authorities to take initiative to raise awareness; collective clean up-activities; hold meetings to address how to maintain a clean environment; address alternatives for the use of mercury in artisan goldmining.

Action on government level

The majority of respondents (67.4%) feel the government could do more against environmental pollution. Most people think there should be legal sanctions against pollution. It is important that those sanctions are implemented as well. Furthermore, respondents highlight the need for awareness raising and technical training (for example on recycling). Respondents complain about the lack of facilities (place where you can safely bring your batteries) and maintenance (especially of water works).

One third of respondents (32.4%) feel they already do enough and people should not always wait for the government and do things for them (0.3 missing).

F Communication channels to reach people

Channels of communication

Suriname has a multitude of television and radio stations, many of them catering to a specific cultural-ethnic group; immediately noticeable by the language spoken in talk-shows and the selection of foreign programming (for example Indian versus African movies). We asked respondents from what source they usually receive their information as shown in table underneath.

Source of information	television	%	radio	%	Friends / family	%	News paper	%	Social media	%	other	%
frequency	239	78.6	180	59.2	45	14.8	117	38.5	69	22.7	10	3.3

Traditional media channels (television and radio) thus still lead as a source of information for our sample. We asked respondents also for the names of their favorite channels. People in rural areas indicate however that many stations broadcasting from the capital (including the national stations) cannot be received by them. This explains why, when asked for names of favorite television or radio stations, geographical differences occur. In the rural interior, people are often relying on regional and community radio stations. In parts of Marowijne, the nearest radio station from French-Guyana is the only station that achieves a clear signal. For a communication strategy it is therefore imperative to segregate these data geographically.

We asked respondents what other methods are used in their community to convey information. Some mentioned public hearings (6.6%), which are formal meetings organized by the Ministry of Regional Development (RO). Some people (3.9%) also get information through the local structures of RO⁷; and through members of the Ressor Council (RR). Almost one third of respondents (29.9%) mentioned *krutu's*, formal meetings organized by traditional authorities, usually held on village level. Information is also channeled through religious meeting places (church, mosque, and temple) according to 13.8% of respondents. Apart from occasionally mentioned letters, flyers, telephone and *mofo koranti* (mouth to mouth), there are also some institutionalized alternative ways of conveying information. In semi-urban and urban areas there is the car with loudspeaker, mentioned by 66% of respondents; in rural areas the *basia's* spreading family news and important messages by walking around the village (4.3%); and the bus drivers who bring daily information from one destination to another (1.6%).

Communication demands

Respondents were asked on what topic regarding the weather and the environment they would like to have more information. A small portion of respondents (8.2%) did not know; and one out of eight (12.5%) declared not to need any (more) information. Other respondents launched a host of topics which are assembled (in frequency of being mentioned by respondents) in the following table.

⁷ the Citizen Information Centre at the Districts Commissariat, and local staff (BOs) who visit communities

Communication demands per topic:

Would like more information on:	freq	%	Would like more information on:	freq	%
everything	37	12.2			
weather in general	47	11.75	environment in general	122	40.1
climate change	15	4.9	waste disposal	10	3.3
why it gets so hot	13	4.3	clean agriculture	8	2.6
why the seasons have changed	12	3.9	how to stop / cope with mercury pollution	3	1.0
forecast	7	2.3	awareness raising on clean streets and hygiene	5	1.6
Protection of our land / How to be prepared for a disaster	3	1.0			

It is interesting to note that the questions on the weather are focused on understanding (why?) and being prepared. The questions on the environment are much more focused on practical advice (how?) and ways to get started. For a communication strategy this means you could use different entry points (information and action-coaching).

Creative communication

When asked for their favorite sort of music, 16.4% of respondents declared not to have a favorite sort of music. From the other respondents, answers ranged from *Aleke* to American music, from reggae to rock, from *Sambura* to soul, from bachata to Bollywood, and so on. For this sample, gospel turns out to be favorite with 20.7% (1 out of 5).

To see if there are groups in the community who could play an active role in a communication strategy, respondents were asked whether any entertainment, youth or women groups are active in their community. Almost one third of respondents (29.6%) could identify an entertainment group, ranging from cabaret, music bands, choirs and dance groups and cultural groups (like *Djeran Kepang*). A quarter of respondents (25%) knows an active youth and/or women's group in the community, ranging from sports to scouting to cultural and development groups.

Identity

The majority of respondents (79.3%) identifies with a certain ethnical group. The language they speak the most is shown in the table underneath.

language	Aro-waks	Au-canise	Kaliña	English	French	Sarnami	Javane	Dutch	Paramacan	Sranang-tongo	none	total
%	0.6	18.1	8.3	1.6	1	8.9	11.2	38.5	0.6	10.5	0.6	100%

Respondents were asked to indicate their language skills for this language they most often speak.

Almost all respondents (96.7%) can express their feelings and thoughts well in this language, while 91.1% can also use it to explain complicated things. Considerably less respondents (78%) are able to read in this language, while slightly even less respondents (75%) are able to write this language. The language most often mentioned as second language is Dutch (42.1%).

Respondents were also asked if they identify with a certain belief system.

Christian	Muslim	Hindu	Javanism (Kedjawen)	Buddhism	Winti	Kaliña culture	none	missing	total
62.7	14.5	14.1	0.3	0.3	1.6	0.3	3.3	2.9	100%

The majority of our sample identifies as Christian. It should be noted that, for all religions and belief systems, different streams and sub-groups can be identified. For example, the category 'Christian' is composed of Roman Catholic, Moravian Church (EBG), Jehova's Witnesses, Evangelical Ministries and so on.

For overview, in this table only main categories are used. For a communication strategy, it would be useful to explore possible different entry points for different sub-groups.

Summary

Sample and respondents

For this KAP/ B survey, 304 persons were interviewed from the districts of Commewijne and Marowijne. To do justice to the diversity of the population and the geographical differences, different sample processes were used in both districts. For Commewijne, all 6 ressorts were divided up in different spatial areas from which random clusters of 10-12 households were drawn. For Marowijne (6 ressorts also), to ensure inclusiveness of Tribal and Indigenous Peoples, it was decided to sample from one urban ressort, one rural ressort characterized by Maroon villages, and one rural ressort characterized by Indigenous villages. Albina and surrounding communities was divided into 7 clusters of 10-12 households. For Patamacca and Galibi, only 2 clusters of 12-13 households were made.

The total sample showed adequate representation for the age groups (15-25), (26-35), (36-45), (46-55) and (> 56). The total sample of 304 respondents was composed of 134 men (44.1%) and 170 women (55.9%).

Relation with place of residence

Most of respondents have strong ties with the place where they live. More than half of the respondents is born in their place of residence and one third moved there either because of their partner or because of parents and other family. Almost all respondents are living there permanently, and have been living there for 10 years or longer and are living.

Most of respondents appreciate the sociability and peace and quiet of their place of residence. Safety and social control are also important aspects. Next to social factors, respondents appreciate the space and elements of nature (wind, river, forest, beach) and the array of activities possible (hunting, fishing, growing one's own food).

Respondents living in rural areas thus put a clear value on the benefits their living environments provides them with.

A Knowledge of and perceptions on normal weather conditions

Less than half of respondents can correctly identify the months in which the seasons are supposed to change. On the same hand, many respondents complain that, because the seasons are 'confused' they cannot recall how it used to be in the past. A much smaller group can take cues from nature about the upcoming seasons, such as the appearance of certain fruits or insects, or the position of sun and moon. Specifically in rural areas, social-economic activities are connected with the seasons.

All respondents are familiar with the rise of water levels in rivers and canals, and the flooding of streets, agricultural plots, yards and houses, associated with the peak of the major wet season. Respondents are also familiar with the heat and falling levels associated with the peak of the major dry season. Respondents remark on the drying out of the soil ('cracks'), and the incidence of dust storms and fires.

B Knowledge of and perceptions on changes from normal weather conditions

One out of 4 respondents confirms to have experienced extreme weather circumstances, but only a small group finds this had an impact on their lives. When asked how one could prevent the consequences of extreme weather circumstances in the future, almost all respond there is nothing

you can do “because it is nature”. One out of 10 respondents experienced other extreme circumstances / natural disasters, such as failed harvest, pests and pandemics. Almost nobody is able to link cause and effect (extreme rainfall > mosquitoes> dengue, chikungunya and zika).

C understanding of the scientific concept of climate change

The majority of respondents do not know what either “climate change” or “global warming” stands for. Only 1 out of 20 is able to describe the process accurately. An even smaller group is able to identify/describe the main cause of climate change. Respondents rightfully see climate change as a consequence of human behavior. Some relate this also in a spiritual way (“God created the ozone layer to protect us and we destroy it”); others relate it to punishment for the bad things we do in general (as the pests and plagues from the Bible).

The majority of respondents do not feel there is anything they can do about the causes of climate change.

D Practices and Behaviour regarding Water, Sanitation, Hygiene and Environment

The majority of respondents are using rainwater for drinking water, while almost half of respondents have access to piped water. Some respondents are relying on delivery by water truck; some are using a well, while a small group of respondents resorts to creeks (or river) as their source for drinking water. More than 1 out of 4 respondents indicate a lack of drinking water in the major dry season.

Three out of 4 respondents have a flush toilet, while 1 in 4 has a latrine. In general, respondents indicate the toilet flushes into a septic tank.

The majority of respondents (77.6%) indicate to dispose of all their waste assembled. Waste mostly gets collected by garbage truck (66.8%), while some respondents (1.6%) bring it to a landfill. Otherwise, respondents burn (14.5%) or bury (1.3%) their waste. Some respondents (2%) say they dump their waste someplace.

A smaller group (21.7%) indicates to separate their waste. They mention recycling or re-using of plastic bottles; using kitchen and garden waste to feed animals or make compost; and re-use used motor oil to protect wood against termites.

Oil used in the kitchen is either flushed through the sink or toilet, or thrown in the yard or into the gutter. Not one respondent mentions the use of a grease pit or trap.

Although almost all respondents indicate to use a gas cylinder for cooking, they also indicate the use of wood (28%) and charcoal (6.9%). It can be assumed that the alternatives are for economic reasons.

Respondents active in agriculture and horticulture were asked how they prepare the soil for planting and how they cope with insects, fungus and plant diseases. Both the chemical approach (use of herbicides and pesticides) and the traditional method of slash and burn are problematic. A smaller group indicates a ‘green’ approach, rotating different crops and weeding by hand.

E are people willing and able to make behavioral changes towards sustainability?

The majority of respondents voiced specific concerns about environmental pollution, but does not feel able to do something about it, for various reasons. Suggestions for actions are done on the individual, community and government level.

F Communication channels to reach people

Traditional media channels (television and radio) are the main source of information for our sample. We asked respondents also for the names of their favorite channels. People in rural areas indicate however that many stations broadcasting from the capital (including the national stations) cannot be received by them.

Respondents demand more information on both the weather and the environment.

An inventory was made of respondent's favorite music sort, and of their knowledge of active groups in the society. The idea is to produce communication products that are relatable to people. For the same reason, an inventory has been made of language skills and identity (in the sense of what belief system they adhere to).

Recommendations for Communication Strategy

Most of respondents have strong ties with the place where they live (birthplace and/or family). Respondents living in rural areas also put a clear value on the benefits their living environments provides them with.

- *For motivation, communication could thus focus on the things they value and appreciate about their living environment, and the need to protect that.*

Less than half of respondents can correctly identify the months in which the seasons are supposed to change. On the same hand, many respondents complain that, because the seasons are 'confused' they cannot recall how it used to be in the past. One of the topics people demanded more information on is why the seasons are 'out of order' and for, example, why it becomes hotter and hotter in the dry season.

- *For understanding, communication could thus focus on the changes they observe, and relate them to climate change worldwide.*

All respondents are familiar flooding in the major wet season, and with excessive heat and drought in the major dry season.

- *For awareness of what impact climate change could have, communication could build on these experiences.*

Respondents think there is nothing you can do prevent the consequences of extreme weather circumstances "because it is nature". Respondents cannot link cause and effect of extreme weather and other extreme conditions (extreme rainfall > mosquitoes> dengue, chikungunya and zika).

- *For understanding and motivation, communication could focus on the causal links between weather and health.*

The majority of respondents does not know what either "climate change" or "global warming" stands for. Only 1 out of 20 is able to describe the process accurately. An even smaller group is able to identify/describe the main cause of climate change. Respondents rightfully see climate change as a consequence of human behavior. Some relate this also in a spiritual way.

- *For knowledge and understanding, communication could focus on creating a visible image of how human behavior leads to climate change. For reaching consensus on what should be done, it is not absolutely necessary to reach consensus on the cause. Communication could carefully explore the explanation of religious and spiritual leaders and see if a common appeal is possible (for example, take better care of this earth that has been given into our care).*

The majority of respondents does not feel there is anything they can do about the causes of climate change.

- *For inspiration, communication could focus on bringing out ideas on what you can do; and what has worked for other people. One could think about a competition, awards for most innovative, and so on.*

The majority of respondents is using rainwater for drinking water, while almost half of respondents has access to piped water. Some respondents are relying on delivery by water truck; some are using a well, while a small group of respondents resorts to creeks (or river) as their source for drinking water. More than 1 out of 4 respondents indicate a lack of drinking water in the major dry season.

- *For motivation, the link between health and water can easily be made. A lack of water always has its impact on hygiene; surface water is highly vulnerable to contamination; as is rainwater, if the roofing is contaminated by air pollution.*

The majority of respondents indicates to dispose of all their waste assembled. Waste is not collected in a separated way, so this is not very inspiring.

- *Waste collection has improved, but landfills do not meet criteria. Communication should not only address citizens but government on the absence of a waste policy.*

Respondents active in agriculture and horticulture roughly use three methods to prepare the soil for planting (use of herbicides, slash and burn, and manually weeding and digging out). Both the chemical and the traditional method are problematic, while the third method is a challenge in terms of time and cost efficiency.

- *Communication should meet the communication demand for practical advice on how to do sustainable agriculture.*

The majority of respondents voice specific concerns about environmental pollution, but does not feel able to do something about it, for various reasons. Suggestions for actions are done on the individual, community and government level.

- *To stimulate accountability, communication could bring actors from different levels together and discuss what actions should be taken on what levels. Progress on any level could then be taken as an inspiration to other levels (and other communities).*

Traditional media channels (television and radio) are the main source of information for our sample. Many stations broadcasting from the capital (including the national stations) can however not be received by people in rural areas.

- *For a communication strategy it is therefore imperative to segregate these data on stations receivable geographically.*

Respondents demand more information on both the weather and the environment. It is interesting to note that the questions on the weather are focused on understanding (why?) and being prepared. The questions on the environment are much more focused on practical advice (how?) and ways to get started.

- *For a communication strategy this means you could use different entry points (information and action-coaching).*
- *Communication products will have to be relatable to the identity of people, meaning it will have to take into account their belief systems, language skills and entertainment preferences.*