**Online Appendix A – Survey instrument**

Good day / good afternoon. My name is ............ and I am from the Research Institute \_\_\_\_\_\_.

We are doing research with the population of several cities in Brazil for a group of scientists from some universities aiming to analyze programs and actions that affect population.

I'm going to ask a lot of questions for you to give your opinions. There are no right or wrong answers. What is most valuable is that you give your opinion honestly.

Your information and opinions will be kept confidential.

I would like to have your opinion, which is very important for us.

**S1) [Do not ask:]** Check whether the interviewee is wearing glasses or not.

1.... He/she is wearing glasses **[Do S1A]**

2.... He/she is NOT wearing glasses **[Do S1B]**

>> **Card S1**

S1A) Are your glasses suitable for reading this card?

1. Yes 🡺 **Jump to S2** 2. No **🡺 CHECK IF HE/SHE CAN READ THE CARDS OR FINISH**

S1B) To read this card, will you need to wear glasses?

1. Yes **🡺 ASK TO TAKE THE GLASSES OR FINISH** 2. No

S2) How would you like to be called during the interview? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S2A) Do you or someone who lives in your home does work OR worked in the last 5 years in any of these types of businesses? (MR) | | |  | |
| TV or radio station | 1 | → FINISH | |
| Newspaper or magazine editor | 2 | → FINISH | |
| News Site, such as a newspaper, TV, magazine, radio, or just internet site | 3 | → FINISH | |
| Internet blog as administrator, publisher or coordinator | 4 | → FINISH | |
| Mining company | 5 | → FINISH | |
| Metallurgical industry | 6 | → Continue | |
| Beverage industry | 7 | → Continue | |
| Car manufacturer | 8 | → Continue | |
| None of those | 9 |  | |

S2) In which city / state were you born? \_\_\_\_\_\_\_\_\_\_\_\_\_ **[If was born outside Brazil, mark “Born outside Brazil” and write name of the country]**

S3) Do you live here in ………………? **[Mark city name]**

S3A) **[If S2=”Born outside Brazil”]** Can you read and understand texts in Portuguese?

1. Yes 2. No 🡺 **FINISH**

S4A) Do you contribute money to pay the bills in your home? (UR)

1. Yes 🡺 **Do S4B** 2. No 🡺 **Do S4D**

S4B) Are you the only one paying the bills at home or shares that responsibility with someone else? With whom? (UR)

|  |  |  |  |
| --- | --- | --- | --- |
| I am the only one who contributes to pay the bills in my house | 1 |  | S4C) Are you responsible for the main income of your home? Yes or no?1 .... Yes 2 .... No |
| I share this responsibility with my husband / wife / partner | 2 | → |
| I share this responsibility with another person | 3 | → |

**>> Jump to S5**

S4D) But do you participate in the decisions about the expenses of your house or not? (UR)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| I participate in decisions about household expenses | 5 |  |  | |
| I do not participate in decisions about household expenses | 6 | → FINISH | |  |

S5) **I'll show you some cards. You will only be able to flip the next page of the cards when I ask you to flip.**

>> **Card S5**

According to this card, which of these options do you fit best? I will read options. **[READ] (UR)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Fixed job with remuneration | 1 |  | Autonomous / Freelance | 7 |
| take care of the home and do not work | 3 |  | Do some freelance work | 8 |
| Retired and do not work | 4 |  | Pensioner | 9 |
| Unemployed without income | 5 |  | Live on savings | 10 |
| Unemployed receiving unemployment insurance | 6 |  | Receives family allowance | 11 |

**[If (S5 = 3 or S5 = 5) and S4A = 1), do S5A. Otherwise skip to S6]**

S5A) You said **[S4B answer]** and that you are **[S5 answer]**. But do you have any income?

1) Yes **[back to S5]** 2) No **[back to S4A and confirm information]**

**>> Card S6 (in white)**

**Some cards are blank just so as not to divert attention.**

#### S6) In total, counting on you, how many people live in your house, sharing the same budget and expenses with you?

\_\_\_\_\_\_\_\_\_\_\_ people

S6A) **[If S6>1]** And how many of these people are under 18?

\_\_\_\_\_\_\_\_\_\_\_ people

S7) **[If S6>1]** And counting on you, how many of these people who live in your home, contribute to the expenses, remembering that the money can come from salary, retirement, bills, unemployment insurance, pension, financial income, savings, rent and company profit?

\_\_\_\_\_\_\_\_\_\_\_ people

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S8) Gender |  | | S9) Age: \_\_\_ \_\_\_ years | | |
|  | Male 1 | | |  | | Up to 17 1 | → FINISH | |
|  |  | | 18 to 29 Years 2 |  | |
|  | Female 2 | | |  | | 30 to 39 Years 3 |  | |
|  |  | | 40 to 49 Years 4 |  | |
|  |  | | |  | | 50 to 59 Years 5 |  | |
|  |  | | |  | | 60 to 69 Years 6 |  | |
|  |  | | |  | | 70 to 79 Years 7 |  | |
|  |  | | |  | | 80 or more 8 |  | |

**S10) Circle quantities:**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Does your house have ......... ? How many?** | **Quantity** | | | | |  | **What is the maximum education level of household’s head?** | | |
| **0** | **1** | **2** | **3** | **4+** |  |
| Bathrooms | 0 | 3 | 7 | 10 | 14 |  | Illiterate/Primary unfinished | | 0 |
| Household employees (monthly at least 5 days per week) | 0 | 3 | 7 | 10 | 13 |  | Primary finished /  Secundary unfinished | | 1 |
| Wash machine | 0 | 2 | 4 | 6 | 6 |  | Secundary finished / High School unfinished | | 2 |
| Dry machine | 0 | 2 | 2 | 2 | 2 |  | High School finished / Undergraduate unfinished | | 4 |
| Dishwasher | 0 | 3 | 6 | 6 | 6 |  | Undergraduate finished | | 7 |
| Refrigerator | 0 | 2 | 3 | 5 | 5 |  | **Public services** | | |
| Freezer | 0 | 2 | 4 | 6 | 6 |  |  | **No** | **Yes** |
| DVD player | 0 | 1 | 3 | 4 | 6 |  | Treated water | 0 | 4 |
| Microwave oven | 0 | 2 | 4 | 4 | 4 |  | Paved streets | 0 | 2 |
| Microcomputer (desk, laptops, notebooks); (disregard tablets, palms or smartphones) | 0 | 3 | 6 | 8 | 11 |  |  | | |
| Motorcycle (disregard those used exclusively for professional use) | 0 | 1 | 3 | 3 | 3 |  |
| Cars (for private use) | 0 | 3 | 5 | 8 | 11 |  |

## 

#### S11) Are you the household’s head?

1. Yes **🡺 If S10 (education level) is equal to zero, do S12A, otherwisejump to S13**

2. No **🡺 Do S12 and jump to S13**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| S12) What is your maximum education level? (UR) | | |  | S12A) Confirm if respondent is ILLITERATE or is PRIMARY UNFINISHED (UR) | | | |
| Illiterate | 1 | **→ FINISH** |  | Illiterate | **1** | **→ FINISH** |
| Primary unfinished | 2 |  |  | Primary unfinished | **2** |  |
| Primary finished / Secundary unfinished | 3 |  |  |  |  |  |
| Secundary finished / High School unfinished | 4 |  |  |  |  |  |
| High School finished / Undergraduate unfinished | 5 |  |  |  |  |  |
| Undergraduate finished | 6 |  |  |  |  |  |
| Post graduation | 7 |  |  |  |  |  |

#### S13) What is your MARITAL STATUS? **[READ]**

|  |  |
| --- | --- |
| Not married | 1 |
| Married / Living together | 2 |
| Divorced | 3 |
| Widower | 4 |

**[NAME], whenever you do not understand something I'm reading, please let me know and I'll read it again.**

This research aims to analyze a program that would increase the safety of mining dams.

But to talk about safety on mining dams, it is first necessary to know why they exist.

To obtain iron ore, the mines use water jets on the rock to separate the ore from the other materials.

After all the iron ore is removed, the remainder is the tailings, which is a mixture of water, sand, mud and mining tailings in the form of mud.

This mud is placed in a dam near the mining area. The walls of the dam are made with the very mud and stones left over from mining.

1. Two major incidents involving mining dams occurred in Brazil, the first in Mariana and the most recent in Brumadinho. 19 people died in Mariana, while in Brumadinho about 270 people died.

Let's not talk about Brumadinho because we still do not know all the consequences of this incident.

Let's talk ONLY about the Mariana incident that we already know all the consequences.

>> Card **1**

The Mariana incident occurred in November 2015 in Mariana, Minas Gerais, when a large mining dam operated by the Samarco mining company was broken, leaking about 40 million m3 of mud made in the Doce river basin made of water, sand, mud and residues mining.

This card shows the site of the rupture of the dam, which left about 2 thousand people homeless, destroyed houses, farming properties and the infrastructure of the villages around the dam.

It also affected trade, agriculture, livestock, fisheries, tourism, the environment and historical and cultural heritage.

This incident caused the deaths of 19 people. If the population was not alerted to the rupture of the dam, the number of deaths would have been larger.

>> Q1) Have you ever been in the area of Mariana where the incident happened? Yes or no? [READ]

|  |  |
| --- | --- |
| 1 | Yes, you went there BEFORE the accident |
| 2 | Yes, you went there AFTER the incident |
| 3 | Yes, you went there BEFORE and AFTER the accident |
| 4 | No, you have never been there. |
| 5 | **[DO NOT READ]** Do not know / difficult to say |
| 6 | **[DO NOT READ]** Refuse to answer |

**From time to time I will ask you a question to check if you understand the text I just read or if you have any questions.**

>> Card **2**

1. Two lawsuits are in court, one CRIMINAL, against the companies responsible and their managers, and another to pay INDEMNIFICATIONS for all damages caused to people, municipalities and the environment.

According to a court order, the companies responsible were required to pay 12 BILLION reais to the Federal Public Prosecutor's Office to begin paying compensation and recovering the environment.

Until today, almost 1 billion and 800 million reais have already been spent to pay the damages of 80 thousand families. There are still many families and other losses that will be compensated.

>> Q2) Did you understand that justice has already paid 1 billion and 800 million reais in reparations to 80 thousand families? Yes or no?

|  |  |  |
| --- | --- | --- |
| 1 ..... Yes | 2 ..... No | 3 ..... [Do not read] Do not know |

**>> Card 3 (in white)**

From now on we will no longer talk about the economic damages, the deaths of people and indemnities that have already been paid or will be paid for these losses. These issues are being studied in another research.

We will ONLY talk about the impacts that the Mariana incident caused to the environment.

1. After the incident, water companies took a special treatment of the water withdrawn from the river to remove heavy metals and other contaminants.

By analyzing this water provided by the supply companies, scientists have stated that treated water can be consumed WITHOUT affecting people's health.

Therefore, since 2016 the population normally consumes the treated water.

>> Q3) Did you understand that the consumption of treated water provided by water companies has been released since 2016? Yes or no?

|  |  |  |
| --- | --- | --- |
| 1 ..... Yes | 2 ..... No | 3 ..... [Do not read] Do not know |

1. From now on, I will speak the word habitat several times.

Habitat is the area of the environment where a particular species of animal lives.

Rivers, streams and the riverside forest connect to maintain the habitats of the animals of the Rio Doce basin.

When the dam of Mariana broke, the mud invaded the rivers of the region, affecting the habitats of some species that live in the river and in the riverside forest.

In areas where mud impacts were higher, the food chain and animal habitats were more impaired.

There was no disappearance or extinction of any species, but some animals died by burial or lack of food.

>> Q4) Did you understand that the mud also affected the connection between the animals, the river and the riverside forest? Yes or no?

|  |  |  |
| --- | --- | --- |
| 1 ..... Yes | 2 ..... No | 3 ..... [Do not read] Do not know |

1. **If you do not understand something I am reading, please let me know and I will read it again.**

>> Card **6A**

This card shows the website of the Federal Public Ministry, which created the Task Force Rio Doce in 2016, shortly after the incident.

The Task Force has already spent 6 BILLION out of 12 billion reais that the companies responsible for the Mariana incident were forced to make available to begin the recovery of damages.

More than 7,000 scientists, technicians and workers are already working on restoring the environment along the 660km of the river since 2016.

**>> Card 6B (in white)**

Prior to the Mariana incident, the environment of the Doce River basin was already undermined by agriculture, industries, several mining companies and by the use of water for irrigation and for human consumption.

Environmental conditions worsened after the incident.

Scientists from the world's most advanced research centers in the areas of biology, reforestation, fishing and water quality have helped put together a plan to restore the environment.

The scientists identified the damage to the riverside forest, aquatic life, wild animals and birds.

The reforestation of the riparian forest is being done along with the removal of mud from the banks of the river.

Water quality is improving with the removal of mud, rainfall, and water from other rivers entering the Doce River that were not affected by the mud.

Since 2016, recovery actions are monitored continuously by scientists, which verify the growth of the riverside forest, the breeding cycle of the animals, the improvement in the habitats of impacted animals and the improvement of water quality.

Based on the follow-up of the recovery actions initiated in 2016, the scientists calculated the recovery time of the environment to go back to the way it was before the incident.

>> Q6) Did you understand that there is a scientific planning and a follow up of the actions of recovery of the environment since 2016? Yes or no?

|  |  |  |
| --- | --- | --- |
| 1 ..... Yes | 2 ..... No | 3 ..... [Do not read] Do not know |

>> Card **7**

1. **Let's talk about the damage to Aquatic Life.**

This card shows some species of fish from the Rio Doce basin.

The scientists say that:

* There are 100 species of fish in the Doce river, of which 38 are rare species and 15 only exist there.
* No species of fish were extinct or disappeared, but 100 tonnes of dead fish of 90 species were found.
* Mud hinders aquatic life and fish are more heavily contaminated with heavy metals than before the incident.
* The effects of heavy metals on fish cause tumors and difficulty breathing and reproduction.

Scientists have estimated that it will take 60 to 70 years from now to recover aquatic life and reduce the amount of toxins to the level it was before the Mariana incident.

>> Q7) Did you understand that no species of fish were extinct or disappeared, and it will take 60 to 70 years to go back to what it was before the incident? Yes or no?

|  |  |  |
| --- | --- | --- |
| 1 ..... Yes | 2 ..... No | 3 ..... [Do not read] Do not know |

>> Card **8**

1. **Let's talk about the damage to Mata Ribeirinha**

This card shows that the riverside forest is the connecting area of animals with river and forest.

Scientists say that, over the first 110 km, the mud destroyed, on average, 30 meters from the riverside forest on either side of the river.

Scientists have estimated that it will take 25 to 30 years from now so that the riparian forest can grow back to the way it was before the Mariana incident.

>> Q8) Did you understand that the damage to the riverside forest occurred in the first 110 km and it will take 25 to 30 years to go back to what it was before the incident? Yes or no?

|  |  |  |
| --- | --- | --- |
| 1 ..... Yes | 2 ..... No | 3 ..... [Do not read] Do not know |

>> Card **9**

1. **Let's talk about the damage to Wild Animals**

This card shows some of the 440 species of wild animals in the Rio Doce basin.

Six species are rare in Brazil, among them the otter, jaguar and tapir, and 18 species only exist in the region.

The scientists also say that no species of wild animal has been extinct or disappeared. They have already found wild animals of all species that existed in the river Doce basin before the incident.

These scientists have calculated that the recovery of the habitat and population of alligators, otters, tortoises, toads and frogs, which depend more on water for food, will take 60 to 70 years from now to be as it was before the incident of Mariana.

The other wild animals will take from 25 to 35 years from now to recover their habitats and their populations and return to be as it was before the Mariana incident.

>> Q9) Did you understand that no species of wild animal was extinct or disappeared, but the restoration of water-dependent species will take 60 to 70 years and others from 25 to 35 years? Yes or no?

|  |  |  |
| --- | --- | --- |
| 1 ..... Yes | 2 ..... No | 3 ..... [Do not read] Do not know |

>> Card **10**

1. **Let's talk about the damage to the Birds**

This card shows some species of birds from the Rio Doce basin.

Of the 125 species of birds that were normally observed, 25 species fled to nearby regions after the dam rupture. No bird species was extinct.

Scientists have calculated that the return of all bird species to the Doce River basin will take 25 to 30 years from now.

>> Q10) Did you understand that the return of bird species that flew to other areas will take 25 to 30 years? Yes or no?

|  |  |  |
| --- | --- | --- |
| 1 ..... Yes | 2 ..... No | 3 ..... [Do not read] Do not know |

>> Card **11 (in white)**

>> Q11) In your opinion, how serious was the damage to the environment caused by the Mariana incident? [READ] **[rotate with inversing order]**

|  |  |
| --- | --- |
| 5 | Very serious |
| 4 | Serious |
| 3 | Neither much nor little serious |
| 2 | Little serious |
| 1 | Nothing serious |
| 6 | **[DO NOT READ]** Do not know / difficult to say |
| 7 | **[DO NOT READ]** Refuse to answer |

2. Minas Gerais is an important region of the country, where places of historical and cultural value are found because of its economic and cultural strength since the 18th century.

The mud stream from the breakdown of the Mariana dam destroyed totally or partially part of the historical and cultural heritage assets along the first 110km of the Rio Doce.

>> Card **13**

Some examples of historical and cultural heritage are shown in these photos.

Looking at the first line of the card:

* There are 450 archaeological sites of people who have lived in the region in the past, such as indigenous cemeteries, ruins of gold mines and very old paintings.
  + Of these 450 sites, 15 sites were totally destroyed, and 55 sites were partially destroyed.
* There are also 4300 cultural assets, such as mansions, chapels, churches, altars and religious images, among other places of conviviality.
  + Of these 4300 existing sites, 1500 were totally destroyed and 1100 partially destroyed.
* There are also a total of 1200 cultural events such as celebrations, processions, festivities and traditional events in various communities.
  + Of these 1200 demonstrations, 5 are no longer existent and 55 have been partially affected and are now carried out elsewhere.

**>> Q13)** In your opinion, how serious was the damage to the historical and cultural heritage caused by the Mariana incident? [READ] **[rotate with inversing order]**

|  |  |
| --- | --- |
| 5 | Very serious |
| 4 | Serious |
| 3 | Neither much nor little serious |
| 2 | Little serious |
| 1 | Nothing serious |
| 6 | **[DO NOT READ]** Do not know / difficult to say |
| 7 | **[DO NOT READ]** Refuse to answer |

**>> Card 14**

1. This map shows the river Doce in **red** and **yellow**.

* In the first 110 km, in RED, the greatest damage to the environment occurred.
* In this RED section, 50% of the mud was trapped in the bottom and the riverbanks, destroyed the riverside forest and caused the largest number of animal deaths.
* At the end of the stretch in red, at the Risoleta Neves dam, another 25% of the mud stopped inside the dam.
* After this dam, in the stretch in YELLOW, remained 25% of the mud, which went down the river and reached the sea.
* Between the dam and the sea, there was no further destruction of the riverside forest.

In short, this map shows how the volume of mud has decreased along the river.

If the volume of mud had NOT decreased, the damage to the environment and the historical and cultural heritage could have been greater.

>> Q14) Did you understand that decreasing the volume of mud along the river prevented further damage? Yes or no?

|  |  |  |
| --- | --- | --- |
| 1 ..... Yes | 2 ..... No | 3 ..... [Do not read] Do not know |

**>> Card 15 (in white)**

**[NAME]**, now let's talk about safety in mining tailings dams.

1. In the incident of Brumadinho, the dam break alert failed, and the number of deaths was very high.

After the Brumadinho incident, all mining companies were forced to IMPROVE security measures to protect people near the dams.

The security measures used TODAY are:

1. Remove all employees from administrative areas, such as office and restaurant, within the mining area;
2. Monitor 24 hours the degree of stability of the dams, with mechanical and electronic sensors, images of drones and satellites;
3. Remove all persons from the mud impact areas before reaching the maximum risk of breaking;
4. Automatically send alert messages by cellphone, radio, loudspeakers and sirens to the entire impact area;
5. Maintain transport system and escape routes properly signaled and unimpeded to remove the people; and
6. Train nearby populations of dams to properly follow emergency actions.

All 6 measures are already working TODAY and scientists say these measures have GREATLY increased safety, which will prevent many people from dying in the event of a new dam rupture.

>> Q15) Did you understand that these measures corrected the flaws that existed with alarm systems, escape routes and people removal? Yes or no?

|  |  |  |
| --- | --- | --- |
| 1 ..... Yes | 2 ..... No | 3 ..... [Do not read] Do not know |

1. In Brazil, there are 280 mud dams belonging to 90 companies.

National and international scientists say that the risk of breaking any mud dam always exists because the water present in the mud moves and is always forcing the walls of the dam.

Therefore, as long as mud dams exist, these scientists say that there will be another dam break in Brazil in the next 10 years.

When another breakdown occurs, the population will be more protected by the new alert system and there will not be a large number of deaths.

But there will be damages to the environment and historical and cultural heritage similar to those that occurred in the Mariana incident.

>> Q16A) Do you understand that all the dams that contain water in the mud are in danger of breaking and that there will be another dam rupture in Brazil in the next 10 years? Yes or no?

|  |  |  |
| --- | --- | --- |
| 1 ..... Yes | 2 ..... No | 3 ..... [Do not read] Do not know |

>> Q16B) Do you understand that, when another dam rupture occurs, the population will be protected, but will there be damages to the environment and to the historical and cultural heritage as in the Mariana dam? Yes or no?

|  |  |  |
| --- | --- | --- |
| 1 ..... Yes | 2 ..... No | 3 ..... [Do not read] Do not know |

1. To prevent future dam break, all 90 miners have to STOP using mud dams.

This will only be possible with new technology.

To avoid using mud dams, which is an old technology, there is a new technology of treatment of the tailings of the mining that withdraws the water of the tailings.

>> Card **17**

This new technology is known as dry tailing, as you can see on that card.

In a very simple explanation of how to draw the water from the tailings, the mud is centrifuged as in a washing machine and then pressed, leaving only the dry tailings.

These photos show the equipment to dry the tailings and how the tailings get dry.

The withdrawn water is REUSED in the mining process.

All dry tailings are USED to produce cement.

To prevent future dam incidents, miners have to dry up and do away with all mud dams that already exist.

Without mud dams, there will be no risk of damage to the environment and historical and cultural heritage, as happened in the Mariana incident.

>> Q17) Did you understand that dry tail technology is a solution to end all mud dams? Yes or no?

|  |  |  |
| --- | --- | --- |
| 1 ..... Yes | 2 ..... No | 3 ..... [Do not read] Do not know |

**>> Card 18 (in white)**

1. This technology, although recent, is already in use in almost 10% of the world's mines.

This worldwide experience shows that dry tailings can be implanted in 2 years in Brazil, while all mud dams go through the drying process.

This eliminates the risk of breaking another dam.

The cost is very high because the drying and deactivation of the dams and the implantation of the dry tailings facilities must be done AT THE SAME TIME in all existing dams.

Because it is very expensive, all countries that use dry tail, rich or less developed, have been only able to install this technology QUICKLY with the financial help of their governments.

>> Q18) Do you understand that to deploy dry tailing technology will it also be necessary to dry the 280 existing mud dams? Yes or no?

|  |  |  |
| --- | --- | --- |
| 1 ..... Yes | 2 ..... No | 3 ..... [Do not read] Do not know |

1. In Brazil, to introduce dry tailings quickly and to stop dams, before another mud dam break occurs, there are obstacles that are difficult to pass.

FIRST, the government cannot enforce change to dry tailings and cannot determine a fast deadline for this change to occur because current law DOES NOT ALLOW.

SECOND, you cannot know how long it will take to pass a new law. It also cannot know if it will be approved or not.

And THIRD, according to the experts, if left to the 90 miners, the implantation of dry tailings in the 280 dams will take more than 10 years.

Because of these obstacles, without a quick resolution within the law, another dam incident, such as Mariana's, will happen in the next ten years.

Q19) Have you understood that the obstacles prevent the rapid deployment of dry tailings? Yes or no?

|  |  |  |
| --- | --- | --- |
| 1 ..... Yes | 2 ..... No | 3 ..... [Do not read] Do not know |

1. Now that I have explained the obstacles to deploying dry tailings, I am going to talk about a solution to solve this problem.

Renowned lawyers found a solution to address these obstacles and implement dry tailings technology in two years, eliminating forever the risk of another dam break.

>> Card 20

As this card shows, to implement dry tailings in 2 years, the proposal is to divide spending between mining and government:

* Mining companies PAY all costs to close and dry mud of all 280 dams and PAY all expenses to run dry tail technology; and
* Government PAYS investment in design, machinery, equipment and installation of dry tailing technology.

With this division of spending, the government will make LEGALLY mandatory that ALL mining companies to end the 280 mud dams forever within 2 YEARS, otherwise mines that do not deploy dry tailings will be closed.

This solution makes it possible for miners to deploy dry tailing quickly in 2 years and thereby eliminate the possibility of another incident like Mariana's.

>> Q20) Did you understand that with this spending split between government and miners, it will be possible to deploy dry tailings in 2 years? Yes or no?

|  |  |  |
| --- | --- | --- |
| 1 ..... Yes | 2 ..... No | 3 ..... [Do not read] Do not know |

**>> Card 21 (in white)**

1. But the government does not have the money now to pay for dry tailing technology and make drying of the 280 dams mandatory IN 2 YEARS.

In the current economic crisis, all government money is already set aside for use in health, education, security, and various other public sectors. **[Pause 2 seconds]**

To immediately implement dry tailings, without the need of the Parliament approval, the only solution will be to increase a tax that already exists for a period of ONLY 10 MONTHS, starting next year.

But this tax will be charged to all Brazilians according to the level of income of each one, paying more who has higher income and less who has lower income. **[Pause 2 seconds]**

And it will be added to the tax that people already pay on the electricity bill.

All money collected will be deposited in a fund, called the Dry Tailings Fund. **[Pause 2 seconds]**

1. To make sure that money of the Dry Tailings Fund will be efficiently and honestly used, there will be several ways of controls, obligations and guarantees, as follows:

1. BY LAW, the government WILL NOT be able to use this money for any other purpose;

2. The use of money will follow a plan with goals to perform all actions efficiently;

3. The release of money to the mining companies will follow deadlines and targets that, if not met by the mining companies, will force the mine to close immediately and the mining executives be prosecuted;

4. The oversight will be carried out by a Task Force led by the Federal Public Prosecution Service, with the participation of the Federal Court of Auditors, the Federal Police and university specialists;

5. Expenses will be posted every month on the Internet and may be overseen by the population, including mining specialists, journalists and organizations that monitor government spending; and

6. Task Force members shall be held criminally liable for failure to monitor or for any other irregularity.

>> Q22) Do you understand that with these measures the use of money will be constantly monitored and controlled so that the money is used correctly? Yes or no?

|  |  |  |
| --- | --- | --- |
| 1 ..... Yes | 2 ..... No | 3 ..... [Do not read] Do not know |

1. The government is considering whether to adopt this proposal that guarantees the IMMEDIATE and MANDATORY implementation of dry tailings in 2 years, with the tax increase on the electricity bill for a period of ten months.

But the government will only adopt this proposal if most people vote in favor of this tax increase.

If the majority votes IN FAVOR of this tax increase for a period of ten months, the Government will obligate the immediate implementation of dry tailings in all mining companies and thus, forever avoid the risk of a new dam rupture as happened in Mariana.

If most people vote AGAINST this tax increase, the government will not be able to force the immediate replacement of dams by dry tailing technology, and then there will surely be another dam disruption over the next 10 years, with damage to the environment and historical heritage. as it happened in Mariana. [PAUSE 2 SECONDS]

So, I will ask you to vote for or against this tax increase, considering the possible consequences of whether or not this tax increase.

But first think about how much money you have [if S6> 1, add “and your family who lives with you”] has and how you spend that money.

Think if you think that preventing this damage to the environment and historical and cultural heritage is worth the money you would have to pay for this tax increase for ten months.

You may also find that it is not important to end mud dams now or that you would rather use this money for another purpose. [PAUSE 2 SECONDS]

1. .

>> Card **26**

1. **[If S7> 1]** This card shows 10 income brackets. Think about the average monthly income for the last 6 months of the people who contribute to your household expenses. Include all sources of income, such as salary, retirement, tips, unemployment insurance, pension, income from financial investments, savings, rent, company profit, finally, ALL MONEY THAT GET INTO IN YOUR HOME.

**[If S7> 1]** Remembering that, at home, X (response from S7) people contribute to expenses, which income bracket on this card represents, on average, the sum of the total monthly income of the X (response from S7) people?

**[If S7 = 1]** This card shows 10 income brackets. Think about your average monthly income for the last 6 months. Include all sources of income, such as salary, retirement, tips, unemployment insurance, pension, income from financial investments, savings, rent, company profit, finally, ALL MONEY THAT GET INTO IN YOUR HOME.

**[If S7 = 1]** What income bracket on this card represents, on average, your total monthly income?

|  |
| --- |
| Up to R $ 1,000 |
| More than R $ 1,000 to R $ 1,500 |
| More than R $ 1,500 to R $ 2,000 |
| More than R $ 2,000 to R $ 3,000 |
| More than R $ 3,000 to R $ 4,000 |
| More than R $ 4,000 to R $ 5,000 |
| More than R $ 5,000 to R $ 8,000 |
| More than R $ 8,000 to R $ 10,000 |
| More than R $ 10,000 to R $ 15,000 |
| More than R $ 15,000 |
| **[DO NOT READ]** Do not know / difficult to say |
| **[DO NOT READ]** Refuse to answer |

**26A. [IF S7>1]** Have you added the income of the X **[quantity from S7]** people in your household that contribute to the expenses or is this income yours?

1....Yes 2....No **[go back to Q26]**

Q26B) **[For all]** Just to check, is the income you declared a MONTHLY AVERAGE or the LAST MONTHES SUM?

1.... MONTHLY AVERAGE 2.... LAST MONTHES SUM **[go back to Q26]**

**>> REMOVE CARDS**

1. **[NAME]**, now I will ask you to vote for or against the tax increase, taking into account all that I have just said and that the purpose of this tax increase is to implement the dry tailings and to end all mud dams in 2 years, and avoid damages to the environment and historical and cultural heritage, as happened in Mariana.

The amount of the tax increase in the electricity bill is related to your family's income. For a house like yours, the TOTAL cost for you and your family that lives with you would be R$ .\_\_\_\_\_, paid in 10 FIXED monthly installments of R$ \_\_\_\_ during next year.

Do you vote for or against this tax increase on the electricity bill?

|  |  |
| --- | --- |
| 1 ..... Vote for **→ Jump to D1 (for all)** | 2 ..... Against **→ Do Q28** |

**[If someone REFUSES or DOES NOT KNOW, pause and explain:]** Your answer will be kept confidential and would be of great help if you were to vote, even if you are not absolutely sure.

Values for Pilot 3:

* + Total R$ 30, in 10 installments of R$ 3
  + Total R$ 120, in 10 installments of R$ 12
  + Total R$ 380, in 10 installments of R$ 38
  + Total R$ 1.090, in 10 installments of R$ 109
  + Total R$ 3.750, in 10 installments of R$ 375

**>> Card 28C or 28D (inverse order)**

28C. According to this card, what is the MAIN REASON for you to have VOTED AGAINST paying the tax increase for the dry tailings fund? **[rotate with inversing order]**

|  |  |
| --- | --- |
| 11 | The value is too high for me |
| 1 | I have no income to pay this amount |
| 2 | I'd rather use this money for another purpose |
| 3 | It is not important to stop the mud dams |
| 4 | I do not want to give my money to the miners |
| 5 | The money from this tax will be mismanaged |
| 6 | The money goes to corruption |
| 7 | The money from this tax will not be used to deploy dry tailings |
| 9 | Other reason (write): |
| 10 | **[DO NOT READ]** Refuse to answer |

[Obs: codes will not be presented to interviewees]

**FOR ALL**

>> **Remove cards**

Finally, I'll ask you the last questions. I will read each question and the possible answers. Then you will respond which answer best represents your opinion.

1. In your opinion, how much do you consider yourself concerned about the environment? ..... [READ] **[rotate with inversing order]**

|  |  |
| --- | --- |
| 5 | Very concerned |
| 4 | Concerned |
| 3 | Neither much nor little concerned |
| 2 | Little concerned |
| 1 | Nothing concerned |
| 6 | **[DO NOT READ]** Do not know / difficult to say |
| 7 | **[DO NOT READ]** Refuse to answer |

1. In your opinion, how much do you trust the scientists' assessment of the damage caused by the Mariana incident to the environment and to historical and cultural heritage? [READ] **[rotate with inversing order]**

|  |  |
| --- | --- |
| 5 | Trust totally |
| 4 | Trust a lot |
| 3 | Trust not much, not little |
| 2 | Trust little |
| 1 | Trust nothing |
| 6 | **[DO NOT READ]** Do not know / difficult to say |
| 7 | **[DO NOT READ]** Refuse to answer |

1. In your opinion, how much do you believe in the TERMS GIVEN IN YEARS for environmental recovery that would be needed to make the Rio Doce basin back to what it was before the Mariana incident? [READ] **[rotate with inversing order]**

|  |  |
| --- | --- |
| 5 | Believe totally |
| 4 | Believe a lot |
| 3 | Believe not much, not little |
| 2 | Believe little |
| 1 | Believe nothing |
| 6 | **[DO NOT READ]** Do not know / difficult to say |
| 7 | **[DO NOT READ]** Refuse to answer |

1. In your opinion, how much do you believe that the implantation of the dry tailings is important to avoid forever another dam break in Brazil? [READ] **[rotate with inversing order]**

|  |  |
| --- | --- |
| 5 | Believe totally |
| 4 | Believe a lot |
| 3 | Believe not much, not little |
| 2 | Believe little |
| 1 | Believe nothing |
| 6 | **[DO NOT READ]** Do not know / difficult to say |
| 7 | **[DO NOT READ]** Refuse to answer |

1. From what you think, how much do you believe the implantation of the dry tailing in Brazil will be possible IN UP TO 2 YEARS with the financial help of the government? [READ] **[rotate with inversing order]**

|  |  |
| --- | --- |
| 5 | Believe totally |
| 4 | Believe a lot |
| 3 | Believe not much, not little |
| 2 | Believe little |
| 1 | Believe nothing |
| 6 | **[DO NOT READ]** Do not know / difficult to say |
| 7 | **[DO NOT READ]** Refuse to answer |

1. In your opinion, how much do you believe the government will implement dry tailings if the majority of the Brazilian population vote for? [READ] **[rotate with inversing order]**

|  |  |
| --- | --- |
| 5 | Believe totally |
| 4 | Believe a lot |
| 3 | Believe not much, not little |
| 2 | Believe little |
| 1 | Believe nothing |
| 6 | **[DO NOT READ]** Do not know / difficult to say |
| 7 | **[DO NOT READ]** Refuse to answer |

1. From what you think, how much do you believe the government will actually raise the tax if dry tailings technology is deployed? [READ] **[rotate with inversing order]**

|  |  |
| --- | --- |
| 5 | Believe totally |
| 4 | Believe a lot |
| 3 | Believe not much, not little |
| 2 | Believe little |
| 1 | Believe nothing |
| 6 | **[DO NOT READ]** Do not know / difficult to say |
| 7 | **[DO NOT READ]** Refuse to answer |

1. In your opinion, how much do you believe mining companies will implement dry tailings that with the financial help of the government? [READ] **[rotate with inversing order]**

|  |  |
| --- | --- |
| 5 | Believe totally |
| 4 | Believe a lot |
| 3 | Believe not much, not little |
| 2 | Believe little |
| 1 | Believe nothing |
| 6 | **[DO NOT READ]** Do not know / difficult to say |
| 7 | **[DO NOT READ]** Refuse to answer |

1. In your opinion, do you think the tax amount that I told you about 10 installments of R $ \_\_\_\_\_ would be approximately the same amount they will charge you? [READ] **[rotate with inversing order]**

|  |  |
| --- | --- |
| 1 | Maybe an EQUAL value |
| 2 | Maybe a MINOR value |
| 3 | Maybe a GREATER value |
| 4 | **[DO NOT READ]** Do not know / difficult to say |
| 5 | **[DO NOT READ]** Refuse to answer |

1. In your opinion, how difficult would it be for you and your family that lives with you to be able to pay the tax increase in the light account in 10 installments of R $ \_\_\_\_\_ next year? [READ] **[rotate with inversing order]**

|  |  |
| --- | --- |
| 4 | Very difficult |
| 3 | Neither much nor little difficult |
| 2 | Little difficult |
| 1 | Nothing difficult |
| 5 | **[DO NOT READ]** Do not know / difficult to say |
| 6 | **[DO NOT READ]** Refuse to answer |

1. In your opinion, during the interview, how did you feel influenced to vote in the tax increase? [READ] **[rotate with inversing order]**

|  |  |
| --- | --- |
| 5 | I felt FREE to vote |
| 6 | I felt FORCED to vote in favor |
| 7 | I felt FORCED to vote against |
| 8 | **[DO NOT READ]** Do not know / difficult to say |
| 9 | **[DO NOT READ]** Refuse to answer |

1. Do you receive your electricity bill from by mail, the internet, direct from the company employee, or do you still not receive it? [READ] [Interviewer: If it's an illegal connection, check STILL DO NOT RECEIVE]

|  |  |
| --- | --- |
| 1 | By post |
| 2 | Through the Internet |
| 3 | Direct from company employee |
| 4 | Not yet received |
| 5 | **[DO NOT READ]** Do not know / difficult to say |
| 6 | **[DO NOT READ]** Refuse to answer |

1. My supervisor or other staff member can call you to see if I have spoken to you today. It would be a big help if I could have your full name and phone number so they can do it.

[IF NECESSARY: THIS INFORMATION SHALL ONLY BE USED BY MY SUPERVISOR TO CONFIRM SOME DATA IN THE INTERVIEW]

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 99. Refusal

Telephone: ( \_\_\_\_ ) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 99. Refusal 98. No telephone

Address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Nº: \_\_\_\_\_\_\_\_\_

Complement: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Neighborhood: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 99. Refusal

1. Finally, **[NAME]**, I would like you to know that this research is part of a research project of some universities and that the government may or may not take the results into account when deciding on future policies.

**THANK AND FINISH**

**FOR THE INTERVIEWER TO ANSWER**

1. What was the level of INVOLVEMENT of the interviewee?

|  |  |
| --- | --- |
| 5 | Fully involved |
| 4 | Very involved |
| 3 | More or less involved |
| 2 | Little involved |
| 1 | Very little involved |

1. What was the level of UNDERSTANDING of the interviewee?

|  |  |
| --- | --- |
| 5 | Fully understood |
| 4 | Understood a lot |
| 3 | More or less understood |
| 2 | Little understood |
| 1 | Understood very little |

1. During the interview, was the interviewee standing or sitting?

|  |  |
| --- | --- |
| 5 | Standing |
| 4 | Most standing |
| 3 | Half standing, half sitting |
| 2 | Most sitting |
| 1 | Seated |