

## Rwanda Study Protocol *Bivuge!*

### Historical Accident Rates

WHO data suggest the rate of road deaths in Rwanda is if anything higher than that in Kenya and Uganda (about 30 per 100,000). Historical data on accident rates for public service vehicles in Rwanda is currently not available. A total number of PSV accidents for 2015 will be calculated once the project baseline data has been cleaned and analyzed.

### Sample Size

Expected sample size is 3,057 vehicles, which represents the population of registered PSVs in Rwanda as estimated by the Rwanda Utilities Regulatory Authority (RURA) in 2015. RURA’s classification system is used to select the type of vehicles:

- (1) 79 buses (35+ passengers)
- (2) 941 coasters (20-35 passengers)
- (3) 2,037 minibuses (15-19 passengers)

### Recruitment Strategy

Vehicle recruitment will take place at Nyabugogo the main bus station in Kigali. The study team has estimated that 90% of Rwanda’s PSVs transit through Nyabugogo. However, if the sample size cannot be reached by recruiting in Kigali, additional regional stations will be included.

The randomization mechanism is the license plate of the vehicle.

**Control group:** license plate ending in an odd number

**Treatment group 1 (with dashboard sticker):** license plate ending in 2, 4, or RAA/RAB

**Treatment group 2 (without dashboard sticker):** license plate ending in 6, 8, or RAC/RAD.

<b>Control</b>		Odd Number Plates	1
			3
			5
			7
			9
<b>Treatment</b>	<b>Subtreatment One: Dashboard Sticker</b>	Low Even Number Plates	2
		Zero	4
	<b>Subtreatment Two: No Dashboard Sticker</b>	High Even Number Plates	RAA/RAB
		Zero	6
		Zero	8
		Zero	RAC/RAD

**Treatment**

Within the treatment group, half of the vehicles will receive a supplementary dashboard sticker that speaks directly to the driver. The addition of a dashboard sticker was requested by the Ministry of Health. Enumerators will place stickers in vehicles based on the following breakdown:

- Buses
  - (8) 15cm x 55cm stickers
  - Half with (1) 7cm x 30cm dashboard sticker
- Coasters
  - (4) 15cm x 55cm stickers
  - Half with (1) 7cm x 30cm dashboard sticker
- Minibuses
  - (4) 7cm x 30cm stickers
  - Half with (1) 7cm x 30cm dashboard sticker

Theme	Kinyarwanda	English	Image
1. Remind the driver	1. Ibutsa shoferi kugabanya umuvuduko	Remind the driver to slow down	Child holding 40 kmph sign 1
	2. Ibutsa shoferi kubungabunga ubuzima bwawe	Remind the driver to protect your life* (maybe change to our lives?)	Children holding hands trying to cross the road
2. Life is important	3. Ubuzima bwawe ni ingenzi, nyabuneka burira umushoferi	Your life is important, please speak out to the driver	One person speaking out, holding hands or shoulders with friend driver (hand next to mouth)
	4. Mugenzi, amagara araseseka ntayorwa	Passenger your life is precious	Three people on bus with arms around each other, one speaking out
	5. Mugenzi, ni uburenganzira bwawe gutwarwa mu buryo butaguteza impanuka	Passenger, it is your right to have a safe ride*	Crashed vehicle 2
	6. Mugenzi, amagara araseseka ntayorwe bwira shoferi agutware gake	Passenger, your life is precious, remind the driver to slowdown	Newspaper with accident
4. Drive well	7. Wiceceka, bwira	Tell the driver to	Injured person 1



(positive, encouraging message)	shoferi agutware neza, ucecetse wajya ahacecekerwa	drive well, your silence can lead to eternal silence	
	8. Mugenzi, kwirinda biruta kwivuza, irinde impanuka mbere yuko iba	Passenger, prevention is better than cure, prevent an accident before it happens	Doctor and patient
Dashboard Stickers	9. Mugenzi gutwarwa neza ni inshingano zawe	Passenger a safe drive is your responsibility	Passenger seat people looking towards the driver
	10. Ubushishozi bwawe ni ingenzi mu kugira urugendo ruhire( mu rugendo)	Passenger, your awareness contributes to the safe journey	Passenger seat people looking towards the driver 2

*\*The phrases and translations are currently being finalized.*

All vehicles in the control group will receive placebo stickers that advertise a lifestyle campaign promoted by the Ministry of Health. The placebo stickers will differ from the *Bivuge!* stickers in design, color, and style.

The cost of printing stickers is \$0.53 USD each. The cost of printing envelopes is \$0.75 USD each.

Nine stickers and one envelope will be given to half of all buses (40). Total cost per bus with a dashboard sticker = is \$5.52 USD.

Eight stickers and one envelope will be given to half of all buses (39). Total cost per bus without a dashboard sticker = is \$4.99 USD.

Total cost for buses = \$415.41 USD.

Five stickers and one envelope will be given to half of all coasters and minibuses (1,489). Total cost per coaster/minibus with a dashboard sticker = is \$3.40 USD.

Four stickers and one envelope will be given to half of all coasters and minibuses (1,489). Total cost per coaster/minibus without a dashboard sticker = is \$2.87 USD.

Total cost for coasters and minibuses = \$9,336.03 USD.

Total cost for stickers in study sample is \$9,751.44 USD. (This price does not include the one-time cost of design and photography.)

## **Enforcement Protocol**

The study team originally proposed implementing the standard lottery incentive to encourage and monitor the retention of stickers. However, this method was not approved by the Rwanda National Police due to concerns that it could be perceived as “bribing” drivers. The team is currently in negotiations with the Police and RURA to provide enforcement by checking for stickers during routine inspection stops.

## **Source of Accident Data**

Historical claims data is currently being collected from six insurance companies. Project staff use tablets to enter the following information about accidents from the companies’ hard and soft copy records into a SurveyCTO template:

- region
- date
- vehicle registration number
- vehicle company name
- route
- location of accident
- cause of accident
- number of deaths
- number of injuries
- measures taken against driver

## **Quality Control**

A random selection of accident reports will be drawn from across the data collected from the insurance companies. Project staff will verify the accuracy of each accident entry by comparing the data entered into the survey with the original report. Additional quality checks are planned.