Integrating Socio-Economic and Environmental Interventions to Improve Well-Being in Vulnerable Communities[1]

Pre-Analysis Plan

April 2024

Problem statement[2]

Poor rural communities often lack sufficient food and clean water to maintain human health and productivity, and face a high burden of infectious diseases, generating reinforcing feedback that causes poverty-disease traps. In these settings, periodic drug treatments routinely fail to eliminate infectious diseases if they do not also address the disease's environmental reservoir; one needs to directly address the structural environmental mechanisms, not just the infections that are the symptom of environmental exposure. For example, in northern Senegal, the setting for this study, the prevalence of schistosomiasis (also known as bilharzia) in children often rebounds to 70-90% within a year after deworming drug treatment.

Schistosomiasis is the second most socioeconomically-burdensome parasitic disease globally, after malaria, affecting roughly 250 million people worldwide, with >800 million at risk and ~20 million suffering severe consequences annually. Schistosomiasis is caused by snail-transmitted flatworms (of the *Schistosoma* genus) that penetrate human skin. Even when provided drugs to clear the infections, humans quickly get re-infected when they return to snail-infested water bodies. Such persistent infection damages children's health and education advancement, and reinforces poverty. The disease has defied control efforts in the study region and most of the low-income tropics, and is prevalent throughout

This project studies a recent innovation that directly targets an environmental reservoir for the disease. Specifically, aquatic vegetation removal around water access points was recently shown to significantly reduce the burden of schistosomiasis in researcher-managed, pre-registered field trials (Rohr et al. *Nature* 2023). In this study, we explore the effectiveness of alternative designs for an information campaign (i) to promote adoption of that innovation and (ii) to stimulate improvements in schistosomiasis infection rates and living standards with local population-managed implementation of the innovation.

In our study region, a large majority of host snails are captured on or near the freshwater plant *Ceratophyllum demersum* (hereafter, *Cerato*). This plant (*i*) has a mutualistic relationship with snails, (*ii*) is found throughout Africa, Southeast Asia, and Latin America in areas where schistosomiasis is endemic, and, along with other invasive aquatic plants, (*iii*)

[1] This project is funded by NSF (award numbers BCS-2307944 and DEB-2109293). The project principal investigators are Chris Barrett (Cornell), Nicolas Jouanard (Station d'Innovation Aquacole, SIA), Samba Mbaye (Centre de Recherche Pour Le Développement Économique Et Social, CRDES), Gilles Riveau (Espoir Pour La Santé, EPLS), Jason Rohr (Notre Dame, ND), Doudou Sow (Université Cheikh Anta Diop, UCAD), and Faraz Usmani (Mathematica), with key personnel including Sidy Bakhoum (ND), Molly Doruska (Cornell), Souleymane Doucouré (UGB), Lakshmi Iyer (ND), Kira Lancker (University of Copenhagen), Tidjani Ly (EPLS), Abdoulaye Mbengue (EPLS), Momy Seck (SIA), Bruno Senghor (UGB), SImon Senghor (EPLS), and Amina Sylla (CRDES).

[2] This section draws heavily on Rohr et al. (2023).

chokes out waterways, impeding access to open water needed for washing clothes, irrigation, and cooking. Growth of these plants is stimulated by run-off of fertilizer and livestock manure into watersheds. Thus, agricultural development may inadvertently fuel infectious disease and hamper water access. The innovation developed and evaluated by Rohr et al. involves regular removal of *Cerato* to eliminate snail habitat and thereby reduce human schistosomiasis exposure.

The randomized controlled trials (RCTs) reported in Rohr et al. (2023) established not only the efficacy of aquatic vegetation, especially *Cerato,* removal (CR) in reducing schistosomiasis prevalence, but also the profitability of using the harvested *Cerato* as feedstock for compost applied to onion and pepper plots, the cost-effectiveness of its use as livestock feed—when dried for an adequate period of time to kill prospective parasites and pathogens—as well as the absence of significant unintended impacts on human water use or aquatic ecology. However, those results come from researcher-managed trials and thus are neither scalable nor sustainable unless local communities undertake CR on their own. The central objective of this study is to test among two different methods of extending information to try to induce manual CR by rural village residents, to see whether either or both intervention — individually or in combination—effectively induces CR and suppresses snail populations and schistosomiasis infection, improving living standards through any of multiple pathways. We also try to identify the specific mechanisms that generate any observed impacts and the distribution of such impacts within the population.

It is important to note that the snails that vector schistosomiasis are also hosted by other aquatic vegetation species besides *cerato* and even by debris such as used clothes and discarded plastic or wood. So general aquatic vegetation removal (AVR) is desirable to help reduce the vector habitat and reduce schistosomiasis exposure. Other aquatic vegetation can also serve as useful feedstock for compost production. But the researcher-managed trials reported in Rohr et al. (2023) focused on cerato so we emphasize CR specifically, and AVR more generally in the treatments described below.

CR is not especially time-consuming, but it does require regular effort, which necessarily diverts time that could otherwise be used for income generation, domestic chores, social activities, or leisure, all of which have value in poor rural communities. CR also involves some risk of infection if one does not use personal protective equipment (PPE).[3] For this reason, people need a good reason to engage in this innovative behavior.

CR for infectious disease control is a public good. Local and national governments do not presently provide this service. Private individuals must therefore be motivated to provide labor towards the public good. If people are solely self-interested, however, economic theory predicts that relying on voluntary private donation of costly and risky labor effort will result in suboptimal provisioning of the pure public good (CR), and thus a higher prevalence of schistosomiasis than is socially desirable. At the same time, if villagers also value public goods (such as children's health) and people are sufficiently pro-social, public health messages may suffice to control snail populations and limit disease prevalence by inducing the voluntary private provision of pure public goods. It is thus ultimately an empirical question whether simply explaining the public health benefits of CR will suffice to induce

[3] As described below, information experiment treatment arm participants were provided with chest waders, shoulder-length gloves, and pitchforks, along with instruction in why and how to properly use that PPE.

that novel behavior. Or perhaps people need to see some added, privately appropriate benefit from CR, as might be gained from the use of harvested aquatic biomass for compost or livestock feed, turning CR into an impure public good.

We designed an RCT to test information campaigns of the sort a government or non-governmental organization (NGO) might launch to promote manual CR by rural community residents. Specifically, we test whether communicating (*i*) the expected private agricultural productivity benefits from composted Cerato, (*ii*) the expected public health benefits from CR, or (*iii*) both induces CR and the follow-on benefits that Rohr et al. (2023) found in researcher-managed CR. This pre-analysis plan (PAP) describes the research design, our research questions (including both primary and secondary outcomes), our data collection methods, and our empirical strategy for testing the hypotheses in our research questions.

We hypothesize that:

- Communicating the private and/or public benefits of CR via an information campaign generates measurable CR, snail population reduction, and public health co-benefits that manifest in lower prevalence and severity of schistosomiasis infection;
- Educating farmers on the private benefits of CR—that is, an impure public good—induces increased labor effort in CR, relative to both a pure control group (that receives no information about CR) and an alternative information treatment arm that is only educated on the public health benefits of CR—that is, a pure public good;
- The private benefits treatment induces higher rates of compost use, leading to higher private agricultural productivity and incomes; and
- These benefits accrue disproportionately to poorer households, who are less likely to purchase fertilizer, have access to piped water (so as to otherwise minimize risks of infection through water contact), and who tend to have a lower opportunity cost of labor.

We also test whether encouraging CR for personal gain inadvertently reduces within-community cooperation or promotes individualistic behaviors over communitarian ones, generally and in the management of common pool resources (CPRs), such as the water sources and aquatic vegetation therein. For example, promoting individual seizure of CPRs may promote a more individualistic, Lockean perspective on resource tenure, reducing support for more communal, cooperative tenurial systems.

Finally, we monitor and test whether CR inadvertently disrupts aquatic ecology or water quality - relative to upstream and downstream control sites - and whether it induces increased human use of more accessible water; Rohr et al. (2023) found no such effects in the researcher-managed CR RCTs.

Background on the Senegal River Valley Region

This study takes place in Saint Louis and Louga regions of northern Senegal. The study communities are located in the Senegal River valley, adjacent to the Senegal River, Lac de Guiers or connected to irrigation canals that can host aquatic snails. Schistosomiasis has long been a major public health problem in this area, aggravated by aquatic ecology changes following the 1988 construction of the Diama Dam near Richard Toll (Southgate 1997, Diop et al. 2023). Two forms of schistosomiasis exist in this region: (i) *S. mansoni*, which infects

the gastro-intestinal tract, and (ii) *S. haematobium*, which infects the urinary tract.[4] The statistically significant impacts identified by Rohr et al. (2023) were with respect to *S. mansoni* in particular.

Communities in this area are poor. Beyond the coastal city of Saint-Louis, few non-agricultural livelihood options exist, and most households depend heavily upon crop cultivation (mainly during the July–October rainy season) and livestock husbandry. Agricultural technologies in use are relatively rudimentary, with little mechanization. Crop yields and livestock lactation rates are very low by global standards.

Residents frequently rely on surface water to wash clothes, bathe, and collect water for cooking and drinking. Schistosomiasis prevalence in this area is therefore the highest of any region of Senegal (Diop et al. 2023). Since 2010, the national government has been running a schistosomiasis control program that includes regular deworming campaigns through schools in the region as well as preventative administration of deworming medication (typically praziquantel) among adults. However, the disease still constitutes a major health concern in this area, with prevalence rates among school children exceeding 87% (Léger et al., 2020; Senghor et al., 2022).

Research design

Overview

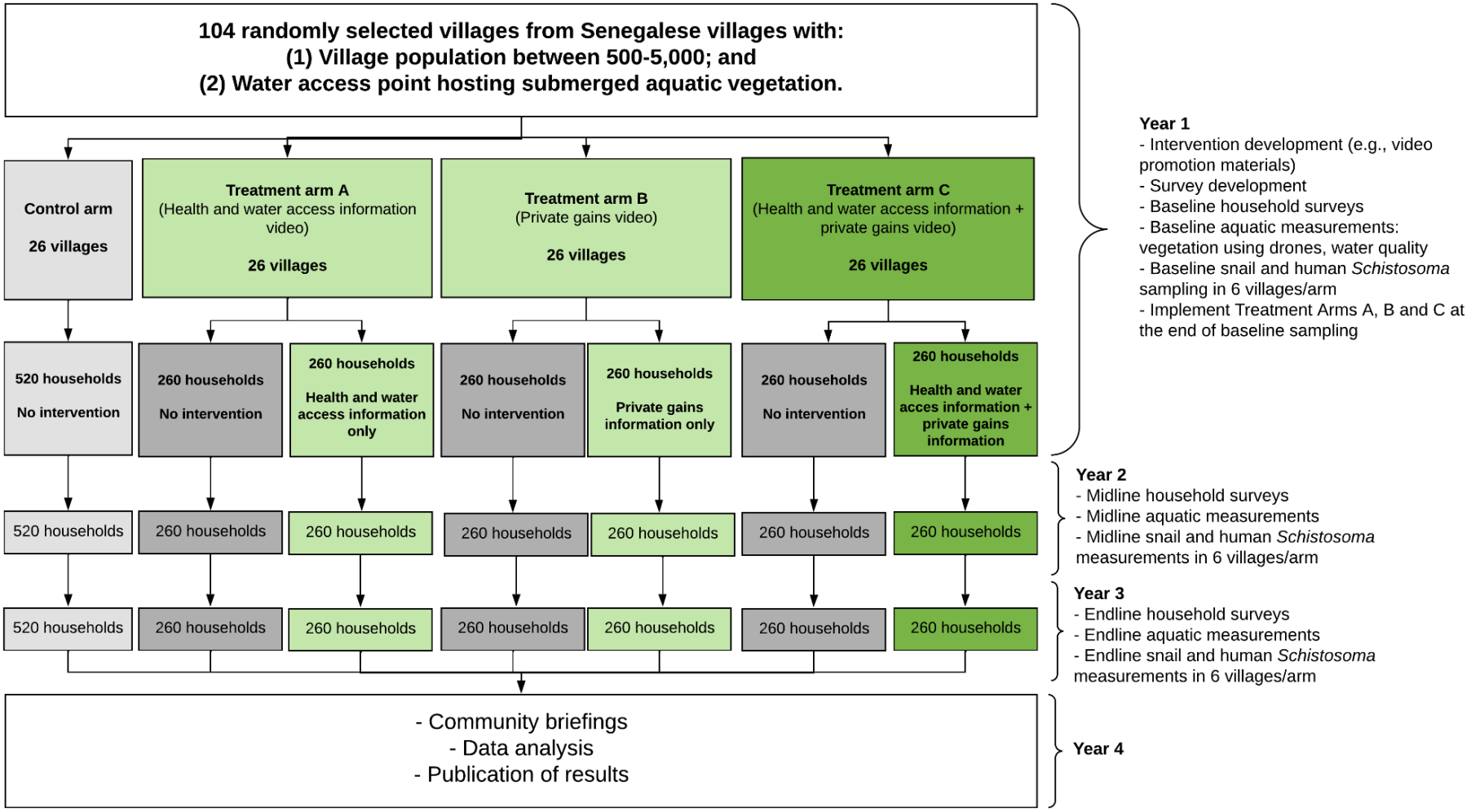
Our design consists of a cluster randomized 2×2 before-after control-intervention (BACI) trial (Figure 1). Specifically, we randomly divided 104 villages (originally, 88 villages, but we added 16 more, as explained below) into four arms of 26 villages each, including a control arm, and three treatment arms (arms A, B and C). Within each village, we randomly select and recruit 20 households for participation in the study, resulting in a total of 520 households in each of the study arms, for a total of 2,080 survey households. Within each treatment village, we will split selected households into 10 households who will not be directly exposed to the intervention and 10 households who will be invited to participate in the intervention. We refer to households in control arm of the study—that is, the 26 villages in the control arm that do not receive any intervention whatsoever, in line with the status quo scenario—as the "pure controls," and to the 10 households per treatment village who are not be directly exposed to the intervention within treatment arms A–C as "local controls."

Description of the intervention

Our intervention entails a roughly two-hour information session delivered to 10 randomly selected households in each village in the three information treatment arms (arms A, B and C). The information session consists of a standardized educational video - produced and delivered in the local languages, Wolof and Pulaar – that describes the water-access and schistosomiasis-reduction benefits of vegetation removal ("public health benefits") or the crop productivity and profit benefits of vegetation removal ("private benefits"), respectively, in treatment arms A and B. Both educational videos are shown to participants in the third treatment (arm C), thereby combining the public health and private benefits information treatments to create a full 2x2 BACI design. Each training video also includes instruction about appropriate precautions to take to protect oneself from infection when clearing vegetation by

[4] *Schistosoma bovis* also infects ruminant livestock in the area and has been hybridizing with *S. mansoni* and *S. haematobium*, but remains unconfirmed in humans.

Figure 1: Intervention design



wearing personal protection equipment (PPE). Participants are given an opportunity and trained in how to properly don the PPE during the session. In addition, those receiving the private benefits information session are also trained on how to effectively convert the vegetation to compost and use the compost for crop production.

In addition to the educational video, experts will be present to answer questions and foster discussion among attendees and a local farmer with experience using compost created from CR will be present to attest to the benefits in the private benefits arm, and a public health expert will attend the public benefits arm to answer questions and foster discussion among attendees. We will also provide two sets of personal protective equipment (namely, a pitchfork, chest waders with boots, and full-length gloves) to be shared among each group of 10 attendees in each information session. Lastly, we will give each information treatment participant a short questionnaire to assess understanding of the benefits, risks and methods of harvesting aquatic vegetation, use for compost (if applicable), and personal protection. Before they depart the training session, each participant is provided with a laminated handout to be taken home to remind them of the value of aquatic vegetation removal. We also follow up with monthly reminders via mobile phone messages for one year after the treatment, conveyed through the village *relais communautaires* (relays) - community contacts established for a range of purposes for communicating with government and outside nongovernmental agencies – or another individual designated by the group of 10 participants at the time of training. Each of the relays is given air time credit of FCFA5,000 (just over US$8) each month to cover their messaging costs. At endline, we will share information on both the private and public benefits with all sample households.

We collect several different types of data: household surveys, community surveys and focus group discussions, drone imaging to measure the extent of vegetation removal, water sampling to assess the presence of snails, and urine and stool samples to assess schistosomiasis prevalence among school children. The data collection details are described below.

Village selection took place in November-December 2023. Household selection and baseline surveys began in January 2024, and concluded in February 2024. Ecological data collection and schoolchildren stool and urine collection and testing began in December 2023 and concluded in early March 2024. At baseline, each household also participated in a pair of donation games. In addition, focus group discussions were held in each village at baseline with 6-10 participants not included in the baseline survey sample.

Delivery of the intervention is expected to start in mid-April 2024 and take 2-3 weeks to complete as shown in Figure 1, we plan to follow sample households for two additional years with midline and endline surveys (in years two and three, respectively), supplemented with semi-annual drone imagery and net sweeps to quantify open water, snail populations, human water contact patterns and submerged vegetation in each water access point. We will repeat the donation games and focus group discussions at endline.

Research questions

In this section, we describe our main research questions, associated outcomes and, where relevant, key hypotheses. We group closely related research questions by the level at which associated outcomes will be measured and thematic focus.

1. Primary outcomes

1.1. Household- or individual-level:

Diffusion of CR practices: Cerato removal is the hypothesized mechanism through which beneficial results arise from the experiment. Accordingly, a primary outcome of interest—logically precedent to the others—is whether the information treatments indeed induce CR—or aquatic vegetation removal (AVR), more broadly since people may have difficulty identifying *cerato* reliably apart from other aquatic vegetation species and other aquatic vegetation can and does host the snails that vector *schistosoma*.

1.1.1. **Does training induce AVR (measured by self-reports)? Does the AVR response to private benefits information differ from that to public health benefits information, versus information on both types of benefits together, all as compared to pure controls that receive no information?** Such responses are the initial mechanism we hypothesize leads to improved health and living standards.

1.1.2. **Does training spill over to non-treated villagers (local controls) to induce them to engage in AVR? Does local spillover AVR response to information about private agricultural benefits differ in its adoption spillovers, versus information about public health benefits, versus information on both types of benefits together, all compared to pure control villages?** The policy-relevant aspiration is that training a subset of villagers suffices to spread the word and engage others in AVR.

1.1.3. **Do we observe no uptake of AVR in pure control villages from baseline to endline?** One threat to identification of a causal effect of the information treatments (in 1.1.1 and 1.1.2) is the possibility that AVR spreads to pure control villages as well. As widespread diffusion of AVR can be considered a desirable outcome from a policy perspective—even if it might confound causal identification under our research design—we include this hypothesis. At the same time, engaging in AVR without appropriate protective equipment can increase risk of infection. We therefore aim to minimize spillovers (for instance, by ensuring that sample communities are not located too near to each other).

1.1.4. **Conditional on finding AVR, does uptake increase between midline and endline, i.e., does the diffusion of AVR accelerate?** Diffusion of innovations typically follows an S-shaped curve in time, accelerating in early years before tapering towards steady state uptake levels. Does this intervention induce the apparent start of such a pattern?

Increased compost use, improved agricultural productivity and food security: The private benefits treatment arm provides simple, video-based training on how to make and apply compost created from harvested *cerato* and explains the evidence on the profitability of this practice. We seek to establish whether the training worked to induce uptake of compost production or use by trainees, as well as spillover to non-trainees. Trainees might be induced to directly produce compost. Or they might be induced to buy compost from those induced to produce it. Compost production and use could directly generate agricultural productivity gains. Note, however, that the treatment could also indirectly generate agricultural productivity gains through other channels, such as other uses of harvested *cerato* (e.g., as animal feed) or by improving

the health of family members, thereby boosting labor supply and productivity. We cannot fully disentangle the direct and indirect pathways through which induced AVR increases compost use and agricultural productivity.

1.1.5. **Does training on the private benefits of CR induce compost production by treated households? Does training on the private benefits of CR induce compost use by treated households, whether through own production or purchase? Does the content of the training matter, or might inducing CR prompt composting even without compost-related messaging (i.e., for households with only the public health information treatment)?** We will compare against local controls and against pure controls to establish whether there is an effect of training regardless of its specific content.

1.1.6. **Does training on the private benefits of compost from CR spill over to non-treated neighbors (i.e., local controls) to induce them to engage in CR and compost production? Does that effect emerge as well in villages with public health benefits information treatments?** We hypothesize that information spillover is less when the messaging emphasizes private benefits, as trainees will be less likely to promote CR among neighbors with whom they might then compete for compost. This spillover mechanism balances out the incentive advantages of the private benefits information treatment over the public health information treatment since the latter is vulnerable to free riding problems.

1.1.7. Does training on the private benefits of compost from CR cause increased agricultural total factor productivity (value of total output divided by value of all inputs) and profitability? Does that effect also emerge in villages with only public health benefits information treatments? Are those effects greatest for poorer households, who are ex ante less likely to invest in chemical fertilizers and other improved inputs?

1.1.8. **Does training on the private benefits of CR and its use in compost production boost food security (as reflected in reduced self-reported months of food insecurity – known locally as** *soudure* **– and reduced coping strategies)?** We hypothesize that the gains will be greatest among poorer households because they are less likely to purchase chemical fertilizers and more vulnerable to schistosomiasis infections as they often lack access to piped water at baseline.

<u>Reduced schistosomiasis:</u> One of the target outcomes of the intervention—mediated through AVR (specifically, CR)—is reduced schistosomiasis prevalence and intensity (i.e., egg counts in stool or in urine).

1.1.9. **Does training in a village reduce the prevalence of schistosomiasis infection (from self-reported condition and symptoms, as well as from urine and stool sample testing among school children) as we compare treatment village households with pure control households? Does being in a village trained on the private benefits of CR yield greater reduction in schistosomiasis than being trained on the public health benefits only, presumably because of reduced free riding? Does being trained oneself reduce the prevalence of**

schistosomiasis, as we compare treatment participants versus local controls (can only test in self-reported data)? Conditional on finding that training induced AVR, we hypothesize that differences with pure controls will be significant, differences between treated and local controls insignificant due to public health spillover benefits, and differences between private benefits and public health information treatments will be insignificant because the greater incentive effect of the private benefits information gets offset by how it attenuates treated individuals' propensity to share information on the benefits of CR. Note that both the private benefits and public health benefits training emphasize the disease risk of schistosomiasis exposure through unprotected human water contact and promote the use of PPE (which we provided). So it seems unlikely that any such differences would emerge because one treatment arm is differentially discouraged from entering the water unprotected.

1.1.10. **Does training in a village reduce the severity of schistosomiasis infection conditional on infection (from urine and stool sample testing among school children) as we compare treatment village households with pure control households? Does being in a village trained on the private benefits of CR yield greater reduction in schistosomiasis egg loads than being trained on the public health benefits only, presumably because of reduced free riding?** Conditional on finding that training induced AVR, we hypothesize that differences with pure controls will be significant, differences between treated and local controls insignificant due to public health spillover benefits, and differences between private benefits and public health information treatments will be insignificant because the greater incentive effect of the private benefits information gets offset by how it attenuates treated individuals' propensity to share information on the benefits of CR.

<u>Pro-social behavior and property rights:</u> The private benefits treatment encourages individuals to take individual possession of vegetation that is, in its natural state, a common pool resource (CPR). One might be concerned that this will encourage more individualistic behavior, manifest in greater support for Lockean conceptions of natural resource tenure (i.e., mixing one's labor with what was common property makes that resource one's own) and reduced willingness to contribute to the public good (as reflected in the donation games).

1.1.11. **Does the pre-intervention level of prosociality predict an individual's contribution to AVR? Do the information interventions affect contributions in the donation game? Do such effects spill over from treated households to local controls? How does an individual's propensity to donate relate to the individual's and the community's observable characteristics?** We hypothesize that individuals who contribute more in the donation game, and who are more prosocial as measured by Lockean beliefs in the household survey, are also more likely to contribute to AVR under treatments with public health benefit information (arms A and C), and that treatments that provide information on private benefits will decrease pro-sociality, as measured by donation game contributions. Further, we hypothesize

that village level contributions are lower in villages with strongly perceived within-village inequality and individualistic beliefs, as obtained qualitatively from the focus group discussions.

1.1.12. **Does promoting the private benefits of a common pool resource (aquatic vegetation) induce a change in beliefs about property rights?** We hypothesize that the private benefits treatment will induce stronger beliefs in private property rights at the endline as measured by the beliefs module of the household survey, and as compared to pure controls and households in the public-only treatment arm.

1.2. **Water access point-level:**

<u>Reduced aquatic vegetation and snails in water access points:</u> The purpose of the information treatments is to induce AVR. Self-reports of AVR help us understand if sample individuals (trainees or controls) engage in AVR directly. But the possibility of independent behavior by other, non-sample villagers could introduce a divergence between individual behavior and the state of the water access point. For example, trained individuals could encourage other, non-sample neighbors to clear aquatic vegetation, yielding the same village-level public health benefit as if the trainee cleared the vegetation themself.

1.2.1. **Does promoting the benefits of AVR reduce aquatic vegetation?** Using both drone imagery and manual net sweeps, we can observe whether greater AVR occurs in villages receiving both public and private benefits education relative to either one alone. We expect to see greater AVR in villages receiving education on the public or the private benefits education than in villages receiving no education at all. We will test this hypothesis by using two different measures. One is water access point level based on manual dip net sweeps at each access point before the treatment arms are implemented, and semi-annually thereafter once the treatment arms have been implemented, through endline.The other measure is for all the village water access points, and out to 100 meters from those points, based on submerged cerato presence extracted through an algorithm from drone imagery.

1.2.2. **Does promoting the benefits of AVR reduce aquatic snail populations, in particular of snails infected with schistosomiasis?** We hypothesize that we will observe significant drops in snail densities in villages receiving both public and private benefits education relative to either one alone. We also expect to see greater drops in snails densities in villages receiving education on the public or the private benefits education than villages receiving no education at all. We will test this hypothesis by using standardized dipnet sampling of snails at each water access point at villages before the treatment arms are implemented, and semi-annually at midline and endline after the treatment arms have been implemented. We test for schistosomiasis infection in snails by having the snails shed in controlled laboratory conditions the same day after dipnet capture.

2. Secondary outcomes

2.1. Household-level:

2.1.1. **Does training in a village reduce individuals' number of days of work or school lost due to ill health (from self-reported conditions**

and symptoms)? This would draw together multiple mechanisms, through direct reduction in schistosomiasis exposure due to CR, indirect advances due to increased household incomes from reduced time lost to illness and improved agricultural productivity. But it can be confounded by a variety of external changes that could spuriously correlate with treatment. In addition, self-reported health measures are noisy. For this reason, we treat this as a secondary outcome. As with primary outcome 1.1.8, we will also test whether being trained oneself (i.e., trainees only, as compared to local controls) reduces the prevalence of self-reported illness, particularly in terms of days of school or work lost to the household. Conditional on finding that training induced AVR, we hypothesize that differences with pure controls will be significant, but differences between treated and local control households will be insignificant due to public health spillover benefits.

2.1.2. **Does training in a village change children's school participation and educational attainment (from self-reported measures on school-aged individuals)?** Competing mechanisms lead to an ambiguous prediction on potential impacts. On the one hand, improved health due to a reduction in schistosomiasis infections may improve school participation and hence educational attainment. On the other hand, the intervention also increases the opportunity cost of schooling, directly with CR as a new source of labor demand and indirectly as improved health also increases returns for other types of child labor, both of which may decrease school participation and hence educational attainment. Therefore, we do not have an explicit hypothesized impact of the intervention on child educational outcomes.

2.1.3. **Do individuals change their contributions when a pure public good is turned into an impure public good?** The addition of private gains when contributing to a public good (turning it into an impure public good) may reduce public contributions due to crowding out (Engelmann et al. 2017, Munro & Valente 2016, Guo et al. 2021) or anchoring, which is of interest for the effective design of information policies. Alternatively, the private benefit framing may change how the community benefits are viewed and may induce increased donations if it results in respondents feeling like they have more "skin in the game." Respondents who contribute less than CFA 200 (very few in our pilots) would likely increase their contributions. Our RCT would enable testing of such mechanisms only via cross-village comparisons; embedding both types of donation games within the survey allows us to test this using a within-individual design.

2.2. **Water access point-level:**

2.2.1. **Does training on the benefits from AVR induce change in human water use patterns?** We expect that sites with less vegetation obstructing water access might be more inviting for swimming and thus there might be an increase in water contact. However, we did not detect this in Rohr et al. (2023). Additionally, encouraging people to remove the vegetation might increase their water contact rates, despite providing personal protective equipment (PPE) if many villagers choose not to wear the PPE. We will test this hypothesis separately for

pre-school age children, school-age children, and adults, using the counts of people in water from each semi-annual water access point data collection round.

2.2.2. **Does training on the benefits from AVR induce change in snail populations and aquatic vegetation (especially cerato) density?** We expect that our information treatments will induce increased AVR, which will manifest in both lower volume of submerged vegetation that creates habitat for snails as well as in lower snail populations.

2.3. Community-scale:

2.3.1. **Do information treatments induce changes in natural resource tenure of aquatic vegetation and/ or other, unrelated common pool resources?** We hypothesize that we will observe differences between villages of different treatment arms regarding changes in natural common pool resource tenure and management at village level, as per qualitative insights from focus group discussions and quantitative indicators from the community level survey.

2.3.2. **Do information treatments affect the prevalence and/or severity of schistosomiasis infections among schoolchildren?** Using the fecal and urine samples collected from 24 of the sample villages, we will test for differences among villages with (i) private benefits treatments, (ii) public health benefits treatments, and (iii) pure controls in the prevalence and average worm count (infection load) per child.

2.3.3. **Do information treatments cause unintended effects on water quality or aquatic biodiversity, using upstream and downstream monitoring sites as controls?** Although Rohr et al. (2023) did not find significant effects of the CR on water quality or non-target organisms, increasing the scale of this intervention could result in unintended consequences not found in the initial trials. We will measure water quality and aquatic biodiversity at villages both upstream and downstream of villages enrolled in treatment arms to identify ecosystem-level effects of CR. We expect that up and downstream sites will not significantly differ in these variables if there are no substantial unintended consequences of CR on the ecosystem.

Power calculations

We present illustrative power calculations for different types of outcome variables and analyses in Table 1. Note that these power calculations do not account for corrections related to multiple outcome and multiple hypothesis testing that we will conduct, as described further below

Table 1: Illustrative power calculations

Illustrative outcome variable	**Minimum detectable effect (units of outcome)**		
	Treatment vs. control arms Cluster-level randomization	**Across any two treatment arms** Cluster-level randomization	**Treated households vs. local controls within all treatment arms** Individual-level

	N = 2,080 households across 78 treatment villages and 26 control villages	N = 1,040 households across 26 treatment arm 1 villages and 26 treatment arm 2 villages	randomization N = 1,560 households of which 780 are treated and 780 are local controls
Binary variable: "Self-reported aquatic vegetation removal"	0.019 Assumed control group mean: 0.01	0.102 Assumed treatment arm 2 mean: 0.25	0.045 Assumed local control mean: 0.13
Continuous variable: "Number of months of *soudure* in past 12 months"	0.095 Assumed control group mean (SD): 3 (0.5)	0.070 Assumed treatment arm 2 mean (SD): 2.5 (0.3)	0.054 Assumed local control mean (SD): 2.75 (0.4)

Notes: All power calculations assume a two-sided test, 0.05 significance level, and 80 percent power. Cluster-level randomization power calculations assume an intraclass correlation coefficient of 0.05, and the proportion of the within-cluster as well as cluster-level variance of the outcome explained by covariates equal to 0.10. Individual-level randomization power calculations assume that the proportion of the individual-level variance of the outcome explained by covariates is equal to 0.10.

Village selection

We initially randomly drew 88 villages that contain or are adjacent to a body of freshwater that could host submerged vegetation, such as *C. demersum*, and thereby serve as a reservoir for *Schistosoma*. We drew on village locations from the 2013 national census and existing GIS data from Google Earth Engine on surface water throughout Senegal to identify villages that met our criteria. We stratified villages based on the baseline agricultural intensity of the lands surrounding the village—as manifest in NDVI—as that influences nutrient runoff and thus *C. demersum* growth and baseline exposure to the disease. We then randomly sampled villages within the two strata to obtain our final sample of villages. We added 16 more villages to baseline at the last minute, as explained below, yielding a total of 104 villages, following exactly the same inclusion criteria and stratification and buffering procedures.

More precisely, to create the randomized listing of villages, we first limited the set of villages considered for an initial site visit using 2013 census-based listing previously constructed by SIA. If a village was listed jointly with another village, both villages were included separately, since the field team had to verify if these are in fact two different villages. Villages in which the field team had previously conducted intervention research that directly or indirectly communicated any findings from Rohr et al. (2023) or Doruska et al. (2024) were initially disqualified from inclusion in the sample due to pre-baseline contamination.

We stratified villages into those with above median NDVI readings and below median NDVI readings since Rohr et al. (2023) found that snail and schistosomiasis prevalence is positively associated with agricultural development. This stratification ensures adequate distribution of villages among those with a higher likelihood of heavy versus lighter pre-treatment exposure to the disease. We randomized villages into the various treatment and control arms within each stratum.

Nine villages already monitored by EPLS in a parallel study (Cartobil, in collaboration with researchers at Stanford University) were pre-selected for inclusion as they were known to

satisfy all inclusion criteria and not to have been contaminated through any sort of intervention; we first randomized these villages into the four different experimental arms. Based on the allocation of these 9 villages, we then reduce the set of villages eligible for the various arms of the experiment based on their proximity to the already selected and randomized villages.

We imposed a 5 kilometer buffer among sample villages. For any village assigned to the control arm, any other village within 5 km of the village must also be in the control arm and cannot be in any treatment arm. For villages in the Private Benefits arm, any other village within 5 km of the village must be in either the Private Benefits arm or the Private and Public Benefits arm and cannot be in the control arm or the Public Benefits arm. For villages in the Public Benefits arm, any other village within 5 km must be in the Public Benefits arm or the Private and Public Benefits arm and cannot be in the control arm or the Private Benefits arm. For villages in the Private and Public Benefits arm, any village within cannot be in the control arm. Thus, the randomization of the 9 pre-selected Stanford/Cartobil villages imposed some restrictions on the rest of the village randomization process.

After eliminating villages not eligible for certain treatment arms due to proximity to already-assigned villages, we randomized - using a computer random number generator - villages one by one across the different treatment arms within each NDVI-based stratum. After selecting a village, we referenced the list of villages within its 5 km buffers and updated which experimental control arms these nearby villages were eligible to join. We followed this process until we had a listing of 104 randomly selected villages across the four experimental arms, with two strata within each arm.

A field team comprised of representatives from the CRDES, ND and SIA teams visited each of the 104 villages to ensure they satisfied the inclusion criteria, in particular, the village size and likely presence of *C. demersum* or schistosomiasis, and to secure the village chief's consent to include the village in the survey. The field team eliminated multiple villages as they did not satisfy one or more of the sample inclusion criteria. No chief of an otherwise eligible village refused to have that village participate. The team also elicited from each chief the preferred use of funds generated through the donation game.

After confirming a village's inclusion in the final sample, the geocoordinates and name and telephone number of the village chief were recorded in a confidential file to facilitate follow-up contact and data collection visits.

During baseline ecological data collection, the ND team doing the dipnet sweep sampling of snails and aquatic vegetation noticed that quite a few sites lacked *C. demersum*, snails, or both. That unexpected absence threatened the research design, because if no *C. demersum* is present, then treatments designed to induce CR will necessarily have no effect on *C. demersum* and are much less likely to have any impact on snail populations, which would seem to have a non-cerato host.

We therefore quickly summarized the ecological data to be more precise about the prospective problem. We found that 32 sample villages had no *C. demersum*, no snails, or neither *C. demersum* nor snails. Furthermore, those absences were not balanced across the four arms of the experiment. There is some reasonable chance that some of these sites experience purely seasonal *C. demersum* or snail absences such that once the rainy season begins (typically in July), *C. demersum* and snails will return. It is also possible - but less likely – that because the team only sampled one water access point per village, *C. demersum*

and/or snails may have been present at one or more other (less-used) water access points used by that village, such that the null results reflect not seasonality but sampling error. In the case of either seasonality or sampling error, these sites remain valid and the experiment and hypothesized mechanisms remain relevant.

It seemed unlikely, however, that all 32 sites' snail or *C. demersum* absences were attributable to just sampling error or seasonality. More likely, schistosomiasis is present in those villages through some other transmission mechanism not targeted by our intervention. (Our team was collectively unaware of any village in the study region that had been screened for schistosomiasis and found to have zero prevalence in the last decade or more.) Most likely, some of these villages - our estimate was perhaps one-third – were erroneously included in the original sample. Their inclusion risks (i) significant attenuation bias in our estimates, and (ii) downward bias in the estimated (positive) impacts of the information interventions, especially with respect to the public health benefits information treatments (arms 1 and 3) in which we found the highest prevalence of zero-valued baseline observations for *C. demersum* or snails.

We therefore agreed to several corrective measures pre-intervention. First, starting with the July-August 2024 ecological sampling, we will cover up to two water access points per village - the two points most used by village residents, prioritizing those with *C. demersum* present - in the dipnet sweeps. The drone imagery will cover all water access points used by the villagers. Second, we re-randomized the 32 villages found to have no *C. demersum* or no snails so as to balance them across experimental arms. That requires reallocating 3 from treatment arm 1 to control, and 1 each from treatment arms 1 and 3 to treatment arm 2. Third, we added 16 villages to the sample, unequally across experimental arms so as to restore equal sample sizes across each arm after the re-randomization. Of these, eight villages had been originally excluded because they were controls in the Rohr et al. (2023) study and included in the Doruska et al. (2024) auctions. (As indicated below, we include an indicator variable for those villages in regressions.) Those 16 additional baseline surveys and ecological data collection were all completed in March-April 2024 prior to the information treatments. EPLS collected baseline stool and urine sample data from (27-30) school children in five of those villages, which augments that sub-sample.

The final village listing for the 104 villages, along with 12 upstream and downstream water quality monitoring sites, is shown in Appendix A.

Data collection

This section provides an overview of each of the data collection efforts conducted as part of this study.

Household- and community-level data collection

Household- and community-level data collection activities are being led by a team from the Centre de Recherche pour le Développement Économique et Social (CRDES). Prior to launching data collection activities, we trained and organized four survey teams, each consisting of one supervisor and four other enumerators. Training occurred from January 4–9, 2024 at Gaston Berger University, and included a one-day field pilot in the village of Ndiawdoune.

Data collection within sample villages started in January 2024, and concluded in mid-April 2024, just prior to the information treatments. Upon arriving in each village, survey teams first sought permission from the village chief to initiate data collection activities. After receiving permission, teams worked with the village chief to develop a roster of all households within the village along with the village chief's assessment of the household's relative wealth standing ("high" or "low") within the community, following which the village chief—or another community leader—completed a detailed community questionnaire to collect information on community-level characteristics (such as infrastructure availability, agricultural practices, and local prices).

A total of 20 households were then randomly selected from the village roster, stratified on relative wealth levels, for a total sample of 1,760 households. Randomly selected households were invited to complete a household questionnaire, which included modules to collect information on household composition and time use, health status (including knowledge about and incidence of schistosomiasis), income and living standards, agricultural practices, and beliefs and perceptions relating to individual and communal property rights.

Finally, households were invited to participate in two separate donation games. Specifically, households completed the following games, with the order in which the games were presented to the respondent randomized at the individual level:

- *Standard donations game*: Before the game starts, each participant receives an envelope with CFA 1,200 (one CFA 500 note and seven CFA 100 coins).[5] The enumerator reads the script to the participant (see Appendix C for all survey materials). The script states that respondents should divide up their CFA 1,200 in one part to keep for their own use (private) and a second part to donate for the community gift (public contribution) to the village-serving organization previously chosen by the village chief (either the local mosque, health facility, or school). Individuals' public contributions are noted down by the game coordinator. The game coordinator stresses that aggregate public contributions, after the household surveys are finalized in the village, will be increased by 50 percent by the survey team and donated to the pre-designated community gift in a public ceremony at the end of the research team's visit to the village. The enumerator gives the participant the time and place of that gathering, helping instill trust in participants that their contribution to the community gift will actually reach its destination safely.
- *"Impure" donations game*: This variant of the game changes the incentives for the donation contribution relative to the standard donation game. First, the initial endowment is CFA 1,000 (one CFA 500 note and five CFA 100 coins). For the first CFA 200 contributed to the public good ("threshold"), the respondents unconditionally obtain an individual benefit of CFA 200, that is, if they donate at least CFA 200, they will be given an additional CFA 200 on top of the initial CFA 1,000 endowment. All other aspects of the game and how it is administered are unchanged. This means that respondents who would contribute CFA 200 or more in the standard donation game will have no monetary incentive to change their contributions. Comparing the contributions between these two variants of the game will enable estimation of any behavioral mechanisms induced by the presence of private benefits.

Focus group discussions

[5] Due to a shortage of small denomination notes and coins, participants were paid via mobile money in a subset of surveyed villages.

Baseline focus group discussions started in January 2024 in conjunction with the household surveys, and concluded in early April 2024. We conducted focus group discussions regarding tenurial control over resources, as well as well-being and health dynamics. In each village of all four treatment arms, an open discussion along a catalog of 17 open-ended questions was held with 6-10 adult, non-survey participants. Participants were selected according to the following criteria: all participants were selected from different families and had to be fluent in Wolof, over 18 years old, and in good health. To ensure diversity, we chose at least two men and two women, at least two participants younger than 40 and two older than 40, at least one participant from the lower and one from the higher end of the wealth distribution and ideally, participants from different parts of the village.

Ecological (sweeps, drone) sampling and measurement protocols

A team from ND and SIA began baseline data collection in December 2023 and concluded data collection in early April 2024. In each village, we sampled the water access point most used by village residents. The drone flights were done by SIA at the same water access points from which sweep samples were collected by a ND team.

The ND team that did the dipnet sweep sampling also gathered data on environmental factor predictors of snail abundance. At baseline, they selected one water access point per village. During the November-December previsit, we asked how many water points villagers used, and the team then went to manually inspect each of them. If there is more than one access point in the village (where access points are defined by emergent vegetation on either side), we asked first the biggest and most frequented access point, and if it had any cerato, we sampled that point. If the most used point did not have cerato, we sampled the most used point that did have cerato. If no cerato was present - which could be simply a seasonal phenomenon since we did baseline sampling well into the dry season – we sampled the most used water access point for water chemistry, vegetation, snails, and *Schistosoma* parasites in snails. Drone flights were conducted at every water access point at each village to estimate submerged vegetation at village scale. So we have two distinct measures of submerged vegetation presence: one at water access point level based on dipnet sweep samples, the other at village level based on machine learning-based estimates from drone imagery (for details, see Appendix C).

At each sampled water access point, the team recorded pH, water conductivity, water temperature, salinity and total dissolved solids (TDS) using a YSI Professional Plus handheld multiparameter meter. We collected a phytoplankton sample in undisturbed water by filling a 15-ml plastic sample tube. We cut across Typha or other emergent vegetation at the water surface with scissors, then inserted the top end into a 50-ml sample tube. We cut the bottom end clean at the tube opening. We kept periphyton and phytoplankton tubes in the dark for one hour before testing in the lab. In the lab, we filled the 50-ml sample tube containing Typha with 45 ml of water and removed all the periphyton with a toothbrush, rinsing the brush in the tube to remove followed by vigorous shaking. Then, we took an aliquot of periphyton using a pipette to half fill a fluorometer cuvette tube. We used the fluorometer to record Ft and QY values on the datasheet for periphyton and phytoplankton using the cuvettes. We rinsed cuvettes with water. We recorded the length and width/diameter of the clipping using a caliper in the datasheet.

At each access point, we performed 10 1-m dipnet sweeps within the boundaries of the water point: three open and seven submerged (on the *Cerato,* if present). Some villages, especially further east – in the Podor and Ndioum areas – lacked emergent vegetation delimiting access points; these were basically beaches along the river, so sweeps were just conducted along the shore at a common access point. In each sweep, we noted which microhabitat was swept in the datasheet. Captured plants were placed into a bucket with water, and shaken vigorously to remove snails and other animals before being examined for any remaining attached snails before being weighed using a digital hanging scale. If there was no *Cerato* in the sweep, other plants were weighed. We poured the water in the bucket through a strainer and collected snails into a pre-labeled sample container. We recorded the number of snails by genus and other animal groups per sweep in the datasheet, along with the sweep depth using a one-meter caliper as well as the GPS location of the sweep. We recorded the snail container number, phytoplankton and periphyton sample tube numbers on the datasheet for each access site and transport captured these back to the lab in a cooler until shed. At the few water access points where no vegetation was present, we performed sweeps on the debris found at the site (e.g., wood, used clothes, plastic, etc.) or on the open mud/sand.

All collected snails were brought to the laboratory the same day to determine if they were infected by *Schistosoma*. In the laboratory, individual snails were exposed under artificial light for one hour to promote schistosome cercarial shedding. Once cercariae were shed, Schistosomes were identified by their diagnostic forked tail and counted with the assistance of a dissecting microscope.

Each start and stop time was noted in the datasheet. A count of all persons in contact with water (except people taking canoes to cross the river, and thus not making skin contact with water) was kept between the start and the end times of sampling. Starting with the first semi-annual follow-up round, we begin breaking down the human population in contact with water into (i) pre-school age children (apparently under five years old), (ii) school age children (roughly 5-18 years old), and (iii) adults (seemingly over 18 years old).

The drone imagery data collection and analysis protocol can be found in Appendix B.

Parasitological sampling, testing and treatment

The EPLS team began baseline data collection in late November 2023 in 14 villages shared with another (Cartobil) project that is doing purely observational monitoring using the same sampling and testing protocol. That sampling concluded in February 2024. The UCAD/UGB team began baseline data collection in March 2024 in the other 15 villages in which stool and urine samples were collected from primary school children and tested. Their baseline was completed in April 2024, just prior to the information treatment interventions.

The sampling, testing and treatment protocols used were identical between EPLS and UCAD/UGB, using procedures developed already for an observational study (the Cartobil project) that EPLS was doing in collaboration with researchers from Stanford University. In each village, the research team received parental consent to sample (and treat, if their child was found infected) a target of 50 children enrolled in the local primary school. So as to maximize the likelihood of tracking of children over the three survey waves, and because schistosomiasis' effects are most acute among younger children, in every village the entire first year class was sampled. Conditional on parental consent, all children in the same classroom were sampled and treated, so as not to treat any child differently than their

classmates. If there were not 50 students in the first year class, the team would also sample the second year class. If the first and second year classes together did not encompass 50 students, the team would sample the third year class, and so on until at least 50 primary school children were sampled or the full school child population of the village had been sampled, whichever came first. In many villages, the uniform treatment of students in a common classroom yielded more than 50 samples per school. In a few villages, the school has less than 50 children. So the per village samples are not uniformly 50 children.

A stool sample and a urine sample were collected from each child and analyzed in the laboratory on the same day to count Schistosoma sp eggs. The precise lab protocol for treating and analyzing samples and recording the results is standard, following Rohr et al. (2023). A second sample of both stool and urine were collected from each of the same children one week later. The second samples were analyzed only in the case of children whose first samples were negative (i.e., no Schistosoma sp eggs identified). The doubling sampling aims to minimize false negatives. In order to conserve scarce lab supplies, second samples were not analyzed in the case of children who tested positive in their first sample. The second sample was collected from those students anyway so as to maintain confidentiality of which children were found infected in the first sample. All sample children then received praziquantel to clear (and, for a period, prevent against) worm infections.

Each child's name, school year level, and parent name(s) were recorded. We use these to match children from the primary school sample with children in the household sample using a unique, child-specific identification code. That lets us link anonymized data sets.

The research teams coordinated in advance with the Ministry of Health to ensure that they did not include the survey schools in the annual (in principle) deworming campaign that typically begins in December. This was to ensure that children's infections were not cleared shortly before the research teams collected urine and stool samples for participating children. Specifically, we shared the study protocol with the coordinator of the national Neglected Tropical Diseases Control Program in Senegal to inform them about the study. We also engaged with the health district chief medical officer and then the list of the villages concerned was shared with the district and the directors. We asked them to not include these children in the mass drug administration efforts and committed to deworming the children after we completed our sampling that year. To ensure that children were not dewormed prior to sampling, the UCAD/UGB team participated in and helped supervise the Ministry's mass drug administration campaign in the field in this region.

After the two parasitological analyses spaced one week apart, all the children in the school were treated with praziquantel (deworming drug) a dose of 40 mg/kg and followed one year after treatment.

Empirical methods

Regression specifications

In this section, we present the regression specifications we will estimate to answer each research question (RQ) outlined in the Research Questions section above.

1. Primary outcomes

1.1. Household- or individual-level

Diffusion of CR practices

1.1.1. Does training induce AVR (measured by self-reports)?

Our analysis will focus primarily on intent-to-treat (ITT) effects of the intervention in villages in the treatment arms at midline and endline (examining each round separately). We will use analysis of covariance (ANCOVA) regression analysis to estimate impacts, conditioning on the baseline value of the relevant outcome variable to increase statistical power (McKenzie 2012). Because there may be spatial spillovers, we explicitly control for distance to the nearest village in a different treatment arm. Specifically, we will estimate the following general specification:

$$y_{iv} = \beta_0 + \beta_1 T_v + \beta_2' X_{iv} + \beta_3 y^*_{iv} + \gamma' D_v + \Theta' A_v + \epsilon_{iv} \quad (1)$$

where y_{iv} is the outcome of interest for household i in village v at middle or endline; T is a binary variable that equals one if household i is located in a village randomly assigned to one of the three treatment arms, and zero otherwise; X'_{iv} includes controls for baseline village, household and/or individual characteristics, namely distance to nearest health clinic and number of water access points used by villagers (village-level variables), household size, access to piped water, and wealth as measured by a household asset index), and the household head's age, sex and literacy status (household-level variables); D_v is the four element vector of distance (in minutes walking to the nearest village in each of the four experimental arms, with a zero indicating the village is in that treatment arm); A is a dummy variable taking value one for villages that were in the Doruska et al. (2024) auctions experiment and zero otherwise, and y^*_{iv} is the baseline value of the outcome of interest. We will cluster standard errors at the village level in line with the village-level assignment of the treatment. If we find more than five percent of dependent variable observations are zero-valued, we will also estimate this (and other equations below) using a panel data censored dependent variable estimator (e.g., CLAD).

Does the AVR response to private benefits information differ from that to public health benefits information, versus information on both types of benefits together, all as compared to pure controls that receive no information?

We will estimate a modified version of the specification shown in equation (1), as follows:

$$y_{iv} = \beta_0 + \beta_1 T_A + \beta_2 T_B + \beta_3 T_C + X'_{iv}\beta_4 + \beta_5 y^*_{iv} + \gamma' D_v + \Theta' A_v + \epsilon_{iv} \quad (2)$$

where T_A, T_B and T_C are binary variables that equal one if unit i is located in a village in treatment arms A, B or C, respectively, and zero otherwise.

1.1.2. Does training spill over to non-treated villagers (local controls) to induce them to engage in AVR?

We will measure within-village spillovers by disaggregating the different types of households and estimating the following modified version of equation (1):

$$y_{iv} = \beta_0 + \beta_1 T_i^L + \beta_2 T_i^T + X_{iv}^{'}\beta_3 + \beta_4 y_{iv}^{*} + \gamma' D_v + \theta' A_v + \epsilon_{iv} \quad (3)$$

where T_i^L and T_i^T are binary variables that equal one if household i is a local control or treated household, respectively, in a village assigned to one of the three treatment arms.

Does local spillover AVR response to information about private agricultural benefits differ in its adoption spillovers, versus information about public health benefits, versus information on both types of benefits together, all compared to pure control villages?

We will disaggregate the different types of households and estimate the following modified version of specification shown in equation (2):

$$y_{iv} = \beta_0 + \beta_1 T_{iA}^L + \beta_2 T_{iA}^T + \beta_3 T_{iB}^L + \beta_4 T_{iB}^T + \beta_5 T_{iC}^L + \beta_6 T_{iC}^T + X_{iv}^{'}\beta_7 + \beta_8 y_{iv}^{*} + \gamma' D_v + \theta' A_v + \epsilon_{iv}$$

where T_{iX}^L and T_{iX}^T are binary variables that equal one if household i is a local control or treated household, respectively, within a village in treatment arm $J \in \{A, B, C\}$.

1.1.3. Do we observe no uptake of AVR in pure control villages from baseline to endline?

We will conduct descriptive "before–after" analyses of changes in AVR by households in pure control villages at midline and endline relative to at baseline by estimating the following specification:

$$y_{itv} = \beta_0 + \beta_1 ML_t + \beta_2 EL_t + X_{iv}^{'}\beta_3 + \gamma_v + \gamma' D_v + \theta' A_v + \epsilon_{itv} \quad (5)$$

where y_{itv} is the value of the outcome of interest for household i at time t in village v; ML_t and EL_t are binary variables that equal one for data collected during the midline and endline survey rounds, respectively, and zero otherwise; and γ_v represents a village fixed-effect.

Improved agricultural productivity and food security

1.1.4. Does training on the private benefits of CR induce compost production by treated households? Compared to households with only the public health information treatment, i.e., does the content of the training matter, or might inducing CR prompt composting even without compost-related messaging?

We will estimate the specification outlined in equations (2) and (3) and check for significant differences between the estimated coefficients representing the binary variables for villages assigned to treatment arms A, B and C and those between local controls and treated households.

1.1.5. Does training on the private benefits of compost from CR spill over to non-treated neighbors (i.e., local controls) to induce them to engage in CR and compost production?
We will limit the analytical sample to households in villages assigned to treatment arms B and C (which will receive information on private benefits) and the pure control arm, and estimate equation (3).
Does that effect emerge in villages with both private and public health benefits information treatments?
We will estimate the specification shown in equation (4) using the full sample of households and check for significant differences between the estimated coefficients representing the binary variable for local controls and treated households within each treatment arm (A, B and C).

1.1.6. Does training on the private benefits of compost from CR cause increased agricultural total factor productivity (value of total output divided by value of all inputs) and profitability? Does that effect emerge in villages with only public health benefits information treatments?
We will estimate the specification outlined in equation (2) and check for significant differences between the estimated coefficients representing the binary variables for villages assigned to treatment arms A, B and C. We will also test whether local controls in private benefits treatment villages exhibit comparable gains to households that get the private benefits treatment, using equation (4).
Are those effects greatest for poorer households, who are ex ante less likely to invest in chemical fertilizers and other improved inputs?
We will conduct heterogeneity analyses by wealth. Specifically, we will generate an asset index based on baseline asset ownership, designate above- and below-median households in terms of that index using a binary variable, and estimate equation (2) after including that binary variable as a fully interacted covariate.

1.1.7. Does training on the private benefits of CR and its use in compost production boost food security (as reflected in reduced self-reported months of *soudure* and a reduced coping strategies index)?
We will estimate the specification outlined in equation (2) and check for significant differences between the estimated coefficients representing the binary variables for villages assigned to treatment arms A, B and C. We will also conduct heterogeneity analyses by wealth based on a baseline asset index, as above.

Reduced schistosomiasis

1.1.8. Does training in a village reduce the prevalence of schistosomiasis infection (from self-reported condition and symptoms, as well as from urine and stool sample testing among school children), as we compare treatment village households with pure control households?
For self-reported conditions and symptoms, we will estimate the specification outlined in equation (1). For outcomes relating to urine-

and stool-sample testing among children, we will estimate the following two-way fixed-effects (TWFE) specification to account for child-specific unobservables:

$$y_{itv} = \beta_1(ML_t \times T_v) + \beta_2(EL_t \times T_v) + X'_{itv}\beta_3 + \beta_4 y^*_{iv} + \gamma_i + \gamma_t + \epsilon_{itv} \quad (6)$$

where y_{itv} is the value of the outcome of interest for child i at time t in village v, which will be a binary indicator variable (=1 if infected, =0 otherwise) to study infection at the extensive margin and a continuous measure of schistosoma egg count to capture infection (severity) at the intensive margin; ML_t and EL_t are binary variables that equal one for data collected during the midline and endline survey rounds, respectively, and zero otherwise; T_v is a binary variable that equals one if child i lives in a village assigned to one of the treatment arms, and zero otherwise; and γ_i and γ_t represent a child- and survey round-specific fixed-effects. We will also estimate this using a panel data censored dependent variable estimator (e.g., CLAD).

<u>Does being in a village trained on the private benefits of CR yield greater reduction in schistosomiasis than being trained on the public health benefits only, presumably because of reduced free riding?</u>
For self-reported conditions and symptoms, we will estimate the specification outlined in equation (2). For outcomes relating to urine- and stool-sample testing among children, we will estimate the following modified version of the ANCOVA specification outlined above:

$$y_{itv} = \beta_1(ML_t \times T_A) + \beta_2(ML_t \times T_B) + \beta_3(ML_t \times T_C) + \beta_4(EL_t \times T_A) + \beta_5(EL_t \times T_B) + \beta_6(EL_t \times T_C) + X'_{itv}\beta_8 + \beta_9 y^*_{iv} + \gamma_i + \gamma_t + \epsilon_{itv} \quad (7)$$

where T_A, T_B and T_C are binary variables that equal one if child i lives in a village assigned to treatment arm A, B or C, respectively, and zero otherwise.
<u>Does being trained oneself reduce the prevalence of schistosomiasis, as we compare treatment participants versus local controls?</u>
We will estimate the specification outlined in equation (3). Note that this analysis will only apply to self-reported data on conditions and symptoms.

1.1.9. <u>Does training in a village reduce the severity of schistosomiasis infection conditional on infection (from urine and stool sample testing among school children), as we compare treatment village households with pure control households?</u>
We will estimate the TWFE specification outlined in equation (6).
<u>Does being in a village trained on the private benefits of CR yield greater reduction in schistosomiasis egg loads than being trained on the public health benefits only, presumably because of reduced free riding?</u>
We will estimate the TWFE specification outlined in equation (7).

<u>Pro-social behavior and property rights</u>

1.1.10. Does the pre-intervention level of prosociality predict an individual's contribution to AVR? We test whether higher endline contributions in the standard donation game are associated with higher contributions to AVR as measured from the household survey for households with knowledge on public health benefits, according to the following regression specification:

$$y_{iv} = \beta_0 + \beta_1 C_{iv} + X'_{iv}\beta_2 + Z'_{iv}\beta_3 + \gamma' D_v + \Theta' A_v + \epsilon_{iv} \quad (8)$$

where C_{iv} is the standard donation game contribution for household i in village v, Z'_{iv} are controls for the village's treatment arm, and the other variables are defined as before. As a robustness check, we will also run a specification with village level fixed-effects instead of village level controls.

Furthermore, to specifically test whether prosocial households respond more to public health benefits information, we will alter specification (8) as follows:

$$y_{iv} = \beta_0 + \beta_1 C_{iv} + \beta_2 C_{iv} T_{A,C,end} + X'_{itv}\beta_3 + Z'_{iv}\beta_4 + \gamma' D_v + \Theta' A_v + \epsilon_{iv} \quad (9)$$

where $T_{A,C,end}$ is a binary variable that is 1 if the household is part of a village in treatment arms 1 or 3 and the time is endline, and 0 otherwise. According to the hypothesis, we should find that β_2 is positive and significant.

Do the information interventions affect contributions in the donation game? Do such effects spill over from treated households to local controls?

We will use specifications according to equations (2) and (3), with the individual's contribution to the standard donation game as outcome variable.

How does an individual's propensity to donate relate to the individual's and the community's observable characteristics?

Based on the baseline data and the following specification, we test how individual and village characteristics, in particular Lockean beliefs, affect contributions in the standard and impure donation game:

$$y_{iv} = \beta_0 + X'_{itv}\beta_1 + Z'_{iv}\beta_2 + B'_{iv}\beta_3 + \epsilon_{iv} \quad (10)$$

where B'_{iv} is a battery of variables from the household survey beliefs module, and all other variables are as previously defined.

1.1.11. Does promoting the private benefits of a common pool resource (aquatic vegetation) induce a change in beliefs about property rights? Compare private benefits arms to public health-only arm and pure control arm using beliefs module of household survey. Supplement with qualitative insights from focus group discussions.

2. Secondary outcomes

2.1. Household level

2.1.1. Does training in a village reduce individuals' number of days of work or school lost due to ill health (from self-reported conditions and symptoms)?
We will estimate the specification outlined in equation (1) for each of these two outcomes. We will also test for within-village spillovers from treated households to local control households by estimating the specification outlined in equation (3).

2.1.2. Does training in a village change children's school participation and educational attainment (from self-reported measures on school-aged individuals)?
We will estimate the specification outlined in equation (1). We will also test for within-village spillovers from treated households to local control households by estimating the specification outlined in equation (3). Outcomes include highest completed grade level as a measure of educational attainment, current school enrollment as a measure of school participation on the extensive margin, and self-reported school attendance as a measure of school participation on the intensive margin.

2.1.3. Do individuals change their contributions when a pure public good is turned into an impure public good? We will use the following regression equation to examine whether individuals contribute more or less in the impure donation game compared to the standard donation game using the following regression equation:

$$y_{ikv} = \beta_{i0} + \beta_1 I_{ikv} + \beta_2 I_{ikv}\delta_i + \beta_3 O_{ikv} + \epsilon_{ikv} \qquad (11)$$

where k is a subscript that indexes the type of game played, y_{ikv} is the outcome for individual i in village v and for game k, I_{ikv} is a binary variable that is 1 if the observation is from the impure donation game and zero otherwise, O_{ikv} is a binary variable that is 1 if the impure game was played before the standard game and zero otherwise, δ_i is a binary variable that is 1 if the individual in the standard donation game contributed more than the threshold value (CFA 200) and zero otherwise, and β_{i0} is an individual fixed-effect. β_2 will be negative if private benefits result in crowding out community motivations, and will be positive if the existence of private benefits results in a more positive attitude towards public contributions. We will complement this with an alternative version where individual fixed-effects are replaced with a battery of controls at both village and individual level for robustness (see equation 8) .

2.2. Water access point-level

2.2.1. Changes in water use patterns from water point monitoring data. For questions at water access point or community scale, we have far fewer degrees of freedom. We will use regression specifications generally of the form:

$$y_{jv} = \beta_0 + \beta_1 T_v + \beta_3 y^*_{jv} + \gamma' D_v + \theta' A_v + \psi M_{jv} + \epsilon_{jv} \quad (12)$$

where y_v is the outcome of interest for water access point j in village v at midline or endline; T is a vector of binary variables that equal one if the village is randomly assigned to one of the three treatment arms, and zero otherwise; D_v is the four element vector of distance (in minutes walking to the nearest village in each of the four experimental arms, with a zero indicating the village is in that treatment arm); M is a binary indicator variable taking value one for water access points that are missing from the baseline sample and zero those included in the baseline sample; and y^*_v is the baseline value of the outcome of interest, which is set to zero in the case of water access points added after baseline. Having established baseline balance among communities and water points, we should be able to use the random variation in treatment assignment, with control for baseline conditions and for distance to other treated villages, to identify the effects of our information intervention at village scale.We are especially interested in how information treatments affect snail and aquatic vegetation populations, where snail population counts come from the dipnet sweeps and vegetative cover come from both sweeps and drone imagery.

2.2.2. Changes in water quality. We want to monitor and test for unintended aquatic ecology consequences of the intervention. To do this, we estimate a variant of equation (12), now adding the contemporaneous value from the upstream water control point as a regressor, so as to control for exogenous changes in water quality that affect the system upstream of (and thus unaffected by) the local intervention. More specifically, we estimate the regression

$$y_v = \beta_0 + \beta_1 T_v + \beta_3 y^*_v + \gamma' D_v + \delta y^{uc}_v + \epsilon_v \quad (13)$$

where y^{uc}_v is the dependent variable value in the same period from the upstream water control point matched to the water access point under study.

2.2.3. In addition to conducting a Before-After-Control-Impact analysis on water quality and aquatic biodiversity in the villages receiving one of the four treatment arms, we have also designed our sampling to compare treatment arm villages to upstream and downstream sites that are not receiving any treatment. The value of this is that we can assess whether our treatments at water access points are influencing downstream villages. Treatments cannot affect upstream villages, which provide a natural control. To test the hypothesis that treatments disrupt downstream aquatic ecology, we will compare the closest

upstream and downstream villages to a village receiving a treatment using a paired test with the distance of each upstream and downstream from the treatment arm village as a covariate. Water quality variables and vegetation weight will be analyzed with normal error distributions, whereas organismal counts will be analyzed with either Poisson or negative binomial error distributions (compared with AIC).

2.3. Community scale

2.3.1. Do information treatments induce changes in natural resource tenure of aquatic vegetation and/ or other, unrelated common pool resources? We will use the qualitative data collected during the focus groups and perform content analysis and thematic analysis to analyze the presence and shape of particular concepts, in particular property rights, privatization, and community control.

Baseline balance

We will conduct balance analyses across all primary and secondary outcomes that were measured at baseline. We will also conduct baseline balance analyses for all variables used as controls in the regressions above. Balance analyses will include both t-tests of differences between treated and untreated, as well as F-tests of the joint null that the vector of outcomes and the vector of control variables are statistically equivalent between treated and control. If baseline imbalance is discovered for more than five percent of variables, we will include the unbalanced covariates as additional controls in our analyses.

Missing data

We will assess the rate of missingness for each outcome of interest at midline and endline. If the missingness rate is less than or equal to 20 percent, we will continue with the analyses outlined above. However, if the missingness rate is greater than 20 percent, we will no longer report analyses for that outcome variable.

Following Lin et al. (2016), we will account for missing data on covariates as follows:

- Observations with missing covariate values will be included in the regressions that estimate treatment effects as long as the outcome measure and treatment assignment are non-missing.
- If no more than 10 percent of the covariate's values are missing, we will recode the missing values to the overall sample mean (or, alternatively, the sample median if we observe that the covariate is not symmetrically distributed).
- If more than 10 percent of the covariate's values are missing, we will include a missingness dummy as an additional covariate and recode the missing values to the overall mean (or, alternatively, the overall median if we observe that the covariate is not symmetrically distributed).

Extreme values

We will test the robustness of our results by excluding extreme values by Winsorizing the relevant outcome variables at the 99, 95 and 90 percent levels.

Multiple outcome and multiple hypothesis testing

As shown in the section on Research Questions above, we have organized our research questions within key outcome "families" based on the level at which outcomes are measured (e.g., household/individual level) and their thematic focus (e.g., diffusion of CR practices). Accordingly, to account for multiple outcome and hypothesis testing, we will control the family-wise error rate when performing multiple hypothesis tests within each of these families of outcomes. We will do so by estimating adjusted p-values using the free step-down resampling methodology of Westfall and Young (1993) as operationalized in the -wyoung- command in Stata. These adjusted p-values will be presented as robustness checks for our main results.

Appendix A: Sample village listing and map

Region	Department	Commune	Villages Name (from census)	Village Name (local)
Saint-Louis	PODOR	GUEDE VILLAGE	AGNAM TONGUEL	
Saint-Louis	DAGANA	NDIAYE	AMOURA	
Saint-Louis	DAGANA	DIAMA	ASSY	
Saint-Louis	PODOR	THILLA BOUBACAR	BAKAO	
Saint-Louis	DAGANA	ROSS-BETHIO	BISSETTE I	
Saint-Louis	PODOR	GAE	BOULEYDI	
Saint-Louis	PODOR	GUEDE VILLAGE	DADO	
Saint-Louis	DAGANA	MBANE	DAGANA	
Saint-Louis	PODOR	DODEL	DARA ALAYBE	
Saint-Louis	PODOR	THILLA BOUBACAR	DARA SALAM	DAR SALAM
Saint-Louis	PODOR	THILLA BOUBACAR	DEGUEMBERE	
Saint-Louis	PODOR	GAMADJI SARRE	DEMBE	
Saint-Louis	PODOR	NDIAYENE PENDAO	DIABOBES	
Saint-Louis	DAGANA	ROSSO	DIADIAM I	
Saint-Louis	DAGANA	ROSS-BETHIO	DIADIAM III	
Saint-Louis	DAGANA	NDIAYE	DIAGAMBAL I	
Saint-LOUIS	DAGANA	DIAMA	DIAMA	
Saint-Louis	PODOR	DODEL	DIAMAL	
Saint-Louis	PODOR	NDIAYENE PENDAO	DIAMEL (DIAMEL DJIERY)	DIAMEL DJIERY
Louga	LOUGA	KEUR MOMAR SARR	DIAMINAR	DIAMINAR KEUR KANE
Louga	LOUGA	KEUR MOMAR SARR	DIAMINAR LOYENE	
Saint-Louis	PODOR	GAMADJI SARRE	DIARRA	

Saint-Louis	DAGANA	RONKH	DIAWAR	
Saint-Louis	PODOR	GUEDE VILLAGE	DIEGUESS DAROU SALAM	GUEDE VILLAGE
Saint-Louis	DAGANA	DIAMA	DIOSS PEULH	PEULH DIOSS
Saint-Louis	PODOR	GAMADJI SARE	DIOUDE	
Saint-Louis	SAINT-LOUIS	RAO	DIOUGOP	
Saint-Louis	PODOR	DODEL	DODEL	
Saint-Louis	PODOR	GAMADJI SARE	DODEL	DARA ALAYBE
Saint-Louis	PODOR	GUEDE VILLAGE	DONAYE	
Saint-Louis	PODOR	GUEDE VILLAGE	DOUE	
Saint-Louis	DAGANA	ROSS-BETHIO	EL DEBIYAYE MARAYE II	MARAYE
Saint-Louis	DAGANA	DIAMA	EL MOHAMED AMAR	EL MOHAMED LAMAR
Saint-Louis	PODOR	FANAYE	FANAYE DIERY	
Saint-Louis	PODOR	FANAYE	FANAYE WALO	
Louga	LOUGA	KEUR MOMAR SARR	FÈTO	
Saint-Louis	PODOR	GUEDE VILLAGE	FONDE ASS	
Saint-Louis	DAGANA	MBANE	FOSS	
Saint-Louis	PODOR	GAMADJI SARRE	GAMADJI SARRE	
Louga	LOUGA	KEUR MOMAR SARR	GANKETTE BALLA	
Louga	LOUGA	KEUR MOMAR SARR	GAYA	
Saint-Louis	DAGANA	NDIAYE	GNITH	
Saint-Louis	DAGANA	NDIAYE	GOBAK	
Saint-Louis	PODOR	GUEDE	GUEDE	BIRGAL (neighborhood in Guede)
Louga	LOUGA	KEUR MOMAR SARR	GUEO	
Saint-Louis	DAGANA	DAGANA	GUEUM YALLA	
Saint-Louis	DAGANA	BOKHOL	GUIDAKHAR	

Saint-Louis	PODOR	GUEDE	H3 PETEL DIEGUESS	DIABBE (neighborhood in Guede)
Saint-Louis	PODOR	NDIAYENE PENDAO	KADIOGUE (DIABOBES II)	KADIOGNE
Saint-Louis	DAGANA	RONKH	KASSACK NORD	
Saint-Louis	DAGANA	DAGANA	KEUR BIRANE KOBAR	
Saint-Louis	DAGANA	BOKHOL	KHARE	
Saint-Louis	DAGANA	RONKH	KHEUNE	
Saint-Louis	DAGANA	RONKH	KHOR	
Saint-Louis	PODOR	GUEDE VILLAGE	KODITH	
Saint-Louis	PODOR	GUEDE VILLAGE	LERABE	
Saint-Louis	DAGANA	MBANE	LEWAH (TEMEYE LEWAH)	LEWA (TEMEYE LEWA)
Saint-Louis	PODOR	NDIAYENE PENDAO	LOBBOUDOU DOUE	
Saint-Louis	DAGANA	ROSS-BETHIO	MALLA	
Saint-Louis	DAGANA	MBANE	MALLA TACK	
Saint-Louis	DAGANA	RONKH	MBAGAME	
Saint-Louis	DAGANA	NDIAYE	MBAKHANA	
Saint-Louis	PODOR	PODOR	MBANTOU	
Saint-Louis	DAGANA	NDIAYE	MBARIGO	
Saint-Louis	DAGANA	DIAMA	MBERAYE	
Saint-Louis	DAGANA	NDIAYE	MBEURBEUF	
Saint-Louis	DAGANA	DAGANA	MBILOR	
Saint-Louis	DAGANA	NDIAYE	MBOLTOGNE	CROISEMENT SAVOIGNE
Saint-Louis	DAGANA	DIAMA	MBOUBENE PEULH	MBOUBENE NARR
Saint-Louis	PODOR	GUEDE VILLAGE	MBOYO	
Louga	LOUGA	KEUR MOMAR SARR	MERINA GEWEL	
Saint-Louis	Dagana	NDIAYE	MINGUENE BOYE	

Saint-Louis	DAGANA	RONKH	NADIEL I	NADIEL
Saint-Louis	DAGANA	ROSS-BETHIO	NAERE	
Saint-Louis	Dagana	NDIAYE	NDELLE BOYE	
Saint-Louis	DAGANA	ROSS-BETHIO	NDER	
Saint-Louis	DAGANA	MBANE	NDIAKHAYE	
Saint-Louis	SAINT LOUIS	GANDON	NDIALAKHAR WOLOF	NDIALAKHAR WOLOF
Saint-Louis	DAGANA	ROSS-BETHIO	NDIAMAR	SOULOUL
Saint-Louis	PODOR	GUEDE VILLAGE	NDIAWARA	
Saint-Louis	SAINT-LOUIS	RAO	NDIAWDOUNE	
Saint-Louis	DAGANA	ROSS-BETHIO	NDIAYE MBERESSE (NDIAYE NGAINTHE)	KARAMATOU
Saint-Louis	PODOR	THILLA BOUBACAR	NDIAYENE PENDAO	NDIAYENE SARE
Saint-Louis	PODOR	NDIAYENE PENDAO	NDIAYENE SARE	NDIAYENE PENDAO
Louga	LOUGA	KEUR MOMAR SARR	NDIBE	
Saint-Louis	DAGANA	RONKH	NDIETENE	
Saint-Louis	DAGANA	NDIAYE	NDIOL MAURE	
Saint-Louis	DAGANA	NDIAYE	NDIOUNG MBERESSE	NDIOUGUE MBERESSE
Saint-Louis	DAGANA	NDOMBO	NDOMBO	NDOMBO SANDJIRI
Saint-Louis	DAGANA	NDOMBO	NDOMBO ALARBA	
Saint-Louis	PODOR	DODEL	NDORMBOSS	NORMBOSS
Saint-Louis	PODOR	GUEDE VILLAGE	NGAOULE	
Saint-Louis	SAINT LOUIS	GANDON	NGAYE	
Saint-Louis	PODOR	NDIAYENE PENDAO	NGEUNDAR (GARAGE NGUENDAR)	NGEUNDAR
Saint-Louis	DAGANA	NDIAYE	NGOMENE	
Saint-Louis	PODOR	GUEDE VILLAGE	OURO MADIHOU	

Saint-Louis	DAGANA	ROSS-BETHIO	PAKH	
Saint-Louis	PODOR	DODEL	PATHE GALLO	
Saint-Louis	DAGANA	RONKH	RONKH	
Saint-Louis	DAGANA	ROSS BETHIO (ODABE NAWAR)	ROSS BETHIO (ODABE NAWAR)	ODABE NAWAR
Saint-Louis	DAGANA	MBANE	SANEINTE TACQUE	SANEINTE
Saint-Louis	DAGANA	NDIAYE	SAVOIGNE PEULH	KEUR SAMBA DIAM
Saint-Louis	DAGANA	DIAMA	SAVOIGNE PIONNIERS	SAVOIGNE PIONIERS
Saint-Louis	DAGANA	MBANE	SYER	
Saint-Louis	DAGANA	DIAMA	TABA TREICH	
Saint-Louis	DAGANA	MBANE	TEMEYE	TEMEYE THIAGO
Saint-Louis	DAGANA	RONKH	THIAGAR	
Saint-Louis	PODOR	THILLA BOUBACAR	THIANGAYE	
Saint-Louis	PODOR	GAMADJI SARRE	THIELAO	THIELLAO
Saint-Louis	PODOR	NDIAYENE PENDAO	THIEWLE	
Saint-Louis	DAGANA	NDIAYE	THILENE	
Saint-Louis	Dagana	NDIAYE	THILLA	
Saint-Louis	DAGANA	ROSSO	TIGUETTE	
Saint-Louis	DAGANA	NDIAYE	TREICH PEULH	
Saint-Louis	DAGANA	ROSS-BETHIO	YAMANE	
Saint-Louis	DAGANA	RONKH	YETTI YONI (BOUNTOU NDIEUGNE)	YETTI YONE

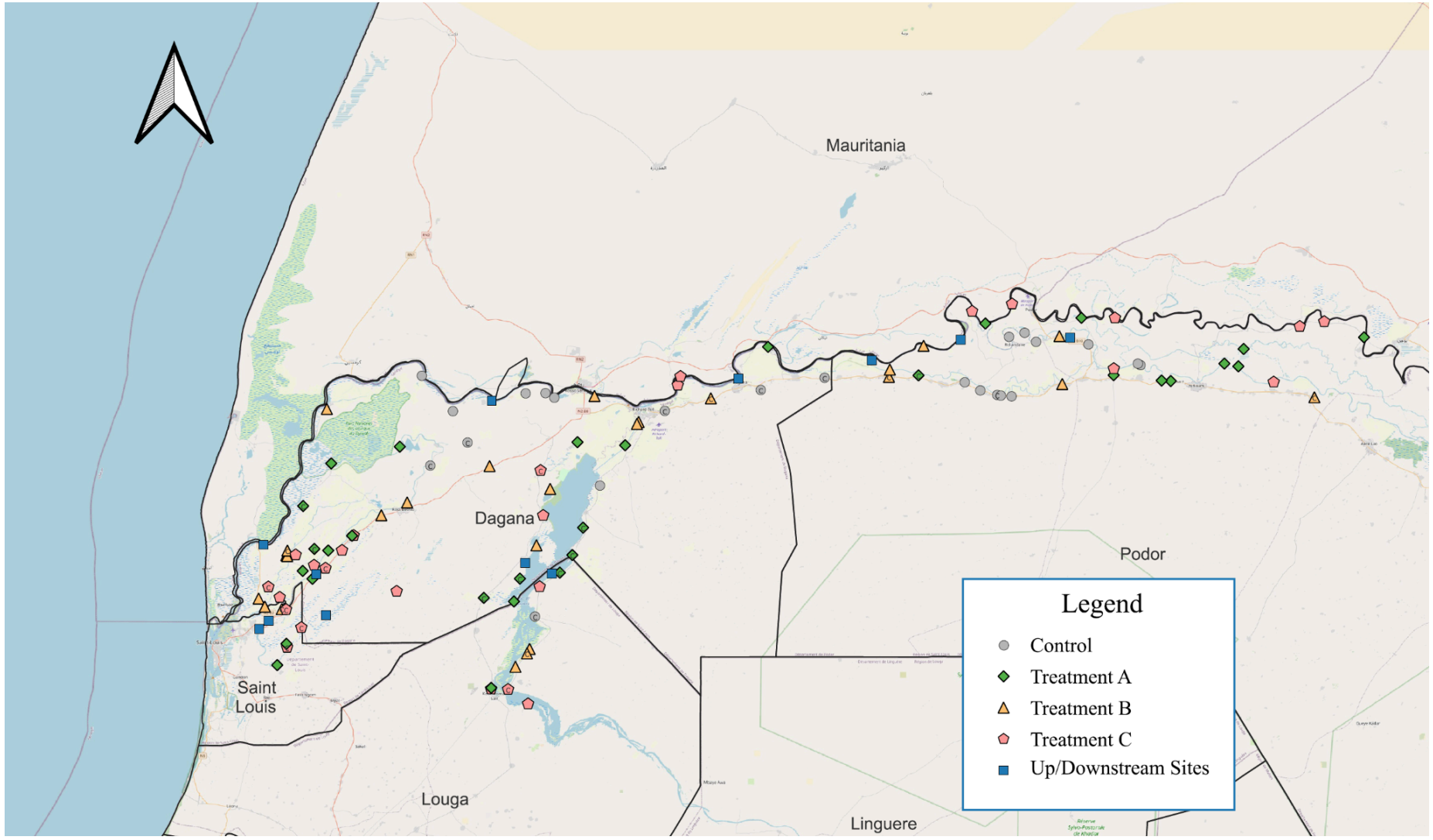


Figure A1: Map of area of the Senegal river and the lac de Guiers showing the location of the study villages. The "C" in the middle of the symbol denotes villages with human parasitological testing.

Appendix B: Drone imagery data collection and analysis protocol

Imagery of the full water-access point will be captured via a Micasense RedEdge-MX multispectral camera attached to a DJI Inspire 2 drone. The Micasense RedEdge-MX camera maintains 5 sensors, each dedicated to a specific portion of the electromagnetic spectrum: Blue (475 nm center, 32 nm bandwidth), Green (560 nm center, 27 nm bandwidth), Red (668 nm center, 14 nm bandwidth), Rededge (717 nm center, 12 nm bandwidth), and Near-infrared (842 nm center, 57 nm bandwidth). Calibration information will be collected with an associated down-welling light sensor which will account for changes in cloud coverage or light intensity throughout the drone flights in addition to an image of a calibrated reflectance panel.

After image collection, an object-based image analysis (OBIA) workflow will be utilized for pre-processing imagery before running a machine learning model for *Ceratophyllum* identification (Chabot et al., 2018). An OBIA has been selected as it is well suited to explore the heterogeneity of wetlands and aquatic systems (Dronova, 2015; Chabot et al., 2016; Husson et al., 2016; Chabot et al., 2018; Visser et al., 2018). Imagery will be radiometrically calibrated and stitched before images are mosaiced and rendered into absolute reflectance maps (pixel values ranging from 0-1). Multiple segmentation along spectral characteristics will be implemented—allowing for discrimination between submerged and floating aquatic vegetation (Chabot et al., 2018). The performance of the trained machine learning classifier will be evaluated using the classified, drone-acquired imagery. Random forest was chosen due to its suitability in high-dimensional feature spaces and accounting for overfitting (Pal, 2005). False positives will be classified as instances where an object is labeled as a particular class but does not actually belong to that classification. False negatives will be classified as instances when an object is not labeled with the appropriate classification by the model. The accuracy of the model on the imagery classification will be determined through kappa, AUC, precision, recall, and F1 score. The amount of *Ceratophyllum* present per water access point will be determined as a proportional coverage.

Appendix C: Household and Community Surveys (including consent and focus group discussion scripts) and Post-Training Comprehension Questionnaire

DISES_household_survey_V1

Field	Question	Answer	
intro	DISES study HOUSEHOLD QUESTIONNAIRE.		
village_select *(required)*	Select the village for the household questionnaire	1	101B, SAINT LOUIS, PODOR, AGNAM TONGUEL
		2	042A,SAINT LOUIS,DAGANA,AMOURA
		3	011A,SAINT LOUIS,DAGANA,ASSY
		4	112A, SAINT LOUIS, DAGANA, BISSETTE I
		5	081A, SAINT LOUIS, PODOR, BOULEYDI
		6	090A, SAINT LOUIS, PODOR, DADO
		7	053B,SAINT LOUIS,PODOR,DARA ALAYBE
		8	082A,,,DARA SALAM
		9	061B,SAINT LOUIS,PODOR,DEMBE
		10	030B, SAINT LOUIS, PODOR, DIABOBES
		11	111A, SAINT LOUIS, DAGANA, DIADIAM III
		12	053A,SAINT LOUIS,DAGANA,DIAGAMBAL I
		13	063B,SAINT LOUIS,PODOR,DIAMAL
		14	040B,SAINT LOUIS,PODOR,DIAMEL (DIAMEL DJIERY)
		15	012B,Louga,Louga,Diaminar
		16	022A, LOUGA, LOUGA, DIAMINAR LOYENE
		17	071B,SAINT LOUIS,PODOR,DIARRA
		18	040A, SAINT LOUIS, DAGANA, DIAWAR
		19	103B, SAINT LOUIS, PODOR, DIEGUESS DAROU SALAM
		20	032A, SAINT-LOUIS, DAGANA, Dioss Peulh
		21	072B,SAINT LOUIS,PODOR,DODEL
		22	101A, SAINT LOUIS, PODOR, DONAYE
		23	091A, SAINT LOUIS, PODOR, DOUE
		24	021A, SAINT-LOUIS, DAGANA, EL DEBIYAYE MARAYE II (16151)
		25	022B,SAINT-LOUIS,DAGANA,El Mohamed Amar
		26	062B,,,FANAYE DIERY
		27	102B, SAINT LOUIS, PODOR, FANAYE WALO
		28	100A, SAINT LOUIS, PODOR, FONDE ASS
		29	081B, SAINT LOUIS, PODOR, GAMADJI SARRE

Field	Question	Answer		
			30	060B, SAINT LOUIS, PODOR, GUEDE
			31	033A, LOUGA, LOUGA, GUEO
			32	010B,Saint-Louis,Dagana,Gueum Yalla
			33	093A,,,GUIDAKHAR
			34	073B,SAINT LOUIS,PODOR,H1 SINTHIOU GAMADJI
			35	070B,SAINT LOUIS,PODOR,H3 PETEL DIEGUESS
			36	100B, SAINT LOUIS, PODOR, KADIOGUE (DIABOBES II)
			37	030A,SAINT LOUIS,DAGANA,KASSACK NORTH
			38	010A,Saint-Louis,Dagana,Keur Birane Kobar
			39	041A,SAINT LOUIS,DAGANA,KEUR SAMBA DIA
			40	083A,,,KHARE
			41	050A, SAINT LOUIS, DAGANA, KHEUNE
			42	110B,SAINT LOUIS,DAGANA,KHOR
			43	110A,SAINT LOUIS,PODOR,KODITH
			44	091B, SAINT LOUIS, PODOR, LERABE
			45	080A,SAINT LOUIS,DAGANA,LEWAH (TEMEYE LEWAH)
			46	103A, SAINT LOUIS, PODOR, LOBBOUDOU DOUE
			47	072A,SAINT LOUIS,DAGANA,MBAGAME
			48	023B, SAINT LOUIS, DAGANA, MBERAYE
			49	012A,SAINT LOUIS,DAGANA,Mbilor
			50	032B, SAINT LOUIS, DAGANA, MBOUBENE PEULH
			51	093B,SAINT LOUIS,PODOR,MBOYO
			52	111B, SAINT LOUIS, SAINT LOUIS, Menguegne
			53	013B,Saint-Louis,Dagana,Minguene Boye
			54	042B,SAINT LOUIS,DAGANA,NADIEL I
			55	112B,SAINT LOUIS,DAGANA,NAERE
			56	013A,Saint-Louis,Dagana,Ndelle Boye
			57	043B,SAINT LOUIS,DAGANA,NDER
			58	011B,SAINT LOUIS,DAGANA,Ndiakhaye
			59	020A, SAINT LOUIS,, NDIAMAR

Field	Question	Answer		
			60	050B,SAINT LOUIS,PODOR,NDIAWARA
			61	063A, SAINT-LOUIS, DAGANA, NDIAYE MBERESSE (NDIAYE NGAINTHE)
			62	020B, SAINT-LOUIS, PODOR, NDIAYENE PENDAO
			63	090B,SAINT LOUIS,PODOR,NDIAYENE SARE
			64	070A,SAINT LOUIS,DAGANA,NDIETENE
			65	073A, SAINT LOUIS, DAGANA, NDIOUNG MBERESSE
			66	102A, SAINT LOUIS, DAGANA, NDOMBO
			67	092A,SAINT LOUIS,DAGANA,NDOMBO ALARBA
			68	041B,SAINT LOUIS,PODOR,NDORMBOSS
			69	052B, SAINT LOUIS, DAGANA, NDOURNABE DIAGANE
			70	083B, SAINT LOUIS, PODOR, NGAOULE
			71	031A,SAINT LOUIS,SAINT LOUIS,NGAYE
			72	082B, SAINT LOUIS, PODOR, NGEUNDAR (GARAGE NGUENDAR)
			73	061A, SAINT LOUIS, DAGANA, NGOMENE
			74	092B,SAINT LOUIS,PODOR,OURO MADIHOU
			75	113B, SAINT LOUIS, PODOR, PATHE GALLO
			76	062A,SAINT LOUIS,,ROSS BETHIO (ODABE NAWAR)
			77	031B, SAINT LOUIS, DAGANA, SANEINTE TACQUE
			78	113A, SAINT LOUIS, DAGANA, SAVOIGNE PIONEERS
			79	071A, SAINT LOUIS, DAGANA, TEMEYE
			80	060A,SAINT LOUIS,DAGANA,THIAGAR
			81	021B,,,THIANGAYE
			82	051B, SAINT LOUIS, PODOR, THIELAO
			83	080B,SAINT LOUIS,PODOR,THIEWLE
			84	052A,SAINT LOUIS,DAGANA,THILENE
			85	023A,Saint-Louis,Dagana,Thilla
			86	043A,SAINT LOUIS,DAGANA,TREICH PEULH
			87	051A, SAINT LOUIS, DAGANA, YAMANE
			88	033B, SAINT LOUIS, DAGANA, YETTI YONI (BOUNTOU NDIEUGNE)

Field	Question	Answer		
hhid_check	Village info: Village name: [village_select_o] village hhid: [hhid_village] Region: [region] Department: [department] Commune: [commune] Village: [village]			
Investigator and supervisor				
sup *(required)*	PLEASE SELECT YOUR SUPERVISOR'S NAME		1	BOCAR GUEYE
			2	MOUHAMADOU LY
			3	ROUGUIYATOU BA
			4	SHEIKH OMAR DIAW
			-777	Other Supervisor
sup_txt *(required)*	PLEASE ENTER NAME *Question relevant when: ${sup} = -777*			
enqu *(required)*	INTERVIEWER: SELECT YOUR NAME PLEASE		1	TIDIANE MBAYE
			2	SAMSIDINE DIAW
			3	HAWA BARRY
			4	BOUBACAR MAMA BA
			5	IBRAHIMA GACKO
			6	MOR FALL SAMB
			7	ABDOULAYE DIALLO
			8	ABDOULAYE WANE
			9	AISSATOU DIA
			10	MOUSTAPHA SY
			11	OUSMANE ANNE
			12	MA FATIM DIOP
			13	OUSMANE ALY THIAM
			14	ALASSANE GUEYE
			15	OUSSEYNATOU BA
			16	IDRISSA KANE
			17	BINETA SOW
			18	MBAYE NDOYE
			19	AMADOU KORKA BA
			20	LAMARANA DIALLO
			21	LAWRATOU BA
			22	MAMADOU SAMBA DJIGO
			23	MAMADOU SOW
			24	MOUHAMED LOUM
			-777	Other surveyor
enqu_txt *(required)*	PLEASE ENTER NAME *Question relevant when: ${enqu} = -777*			
CONSENT GROUP				
_consent_note_t	Good morning ! My name is [enqu_name] and I came to this village to learn a little more about you and your community as part of a research project led by the Research Center for Economic and Social Development of Gaston University Berger, the Hope for Health Biomedical Research Center, and the Aquaculture Innovation Station, all based in Saint Louis, as well as Cornell University and the University of Notre Dame in the United States, under the direction of professors Chris Barrett and Jason Rohr, funded by the National Science Foundation in the United States. If you agree, I would like to explain the activities we will carry out together and ask for your consent to participate. Please note that as part of the research, we may not tell you everything about the purpose of the research or the research procedures. At the end of the study we will provide you with further information. Your household has been randomly selected to participate. Your participation is completely voluntary. You are free not to answer certain questions or to interrupt the interview at any time. Your identity will be kept confidential. Although we request certain specific information from you, we will not retain any individually identifiable information that we collect from you, such as your name or location. We collect these details only for the purpose			

Field	Question	Answer
	of being able to contact you again, if necessary, during the duration of the study. Your name and contact details will be removed from the data as soon as we have finished collecting data in that village, and will not be shared with anyone else. First, we will ask you questions about yourself and your household, mainly about your socio-economic characteristics. The private interview is expected to last approximately 60 minutes. We will return to your village in a year, and then again in two years, and we hope and expect to interview you again to find out if and how your situation has changed. After today's survey, we will ask you to participate in a donation game which will take approximately 20 minutes. During this game, you will receive compensation of 2200 FCFA for playing the donation game. Although you can use these funds to participate in the game, this is not a requirement to participate in research, and you can simply choose to keep the funds for yourself if you wish. Your participation will be confidential, but other selected households will also participate. The group will have the opportunity to hear the results of the donation game at a village meeting before the research team leaves. We will meet at [DAY/TIME LOCATION]. We are not aware of any risk resulting from your participation. There is no direct, immediate or tangible benefit from participating in this survey, with the exception of the donation of 2200 FCFA that we offer to those who agree to participate in the games. However, in the longer term, the results of this study could inform policies related to agriculture, health and development in rural areas in Senegal. De-identified data from this study may be shared with the broader research community to advance science and health. We will remove or codify any personal information that could identify you before we share the files with other researchers, to ensure that, based on current scientific standards and known methods, no one will be able to identify you from the information we share. Despite these measures, we cannot guarantee the anonymity of your personal data. We will return to this village in March, and we also ask that you participate in a short video-based training at that time. We will meet with you for approximately 45 minutes to watch the video and answer any questions you may have. The principal investigator of this study is Professor Samba Mbaye of Gaston Berger University. Don't hesitate to ask questions now. If you have any questions later, you can contact Professor Mbaye at sambambayeugbcrdes@gmail.com or +221 776-056-415. If you have any questions or concerns regarding your rights as a subject of this study, you may contact the Cornell University Institutional Review Board (IRB) for Human Participants at +1 607-255-5138 or visit their website at http://www.irb.cornell.edu. You can also report concerns or complaints anonymously through Ethicspoint online at www.hotline.cornell.edu or by calling toll-free +1-866-293-3077. Ethicspoint is an independent organization that serves as an intermediary between the university and the person making the complaint to ensure anonymity. *Question relevant when: selected(${grappe_int} , "1")*	
_consent_note_c	Good morning ! My name is [enqu_name] and I came to this village to learn a little more about you and your community as part of a research project led by the Research Center for Economic and Social Development of Gaston University Berger, the Hope for Health Biomedical Research Center, and the Aquaculture Innovation Station, all based in Saint Louis, as well as Cornell University and the University of Notre Dame in the United States, under the direction of professors Chris Barrett and Jason Rohr, funded by the National Science Foundation in the United States. If you agree, I would like to explain the activities we will carry out together and ask for your consent to participate. Please note that as part of the research, we may not tell you everything about the purpose of the research or the research procedures. At the end of the study we will provide you with further information. Your household has been randomly selected to participate. Your participation is completely voluntary. You are free not to answer certain questions or to interrupt the interview at any time. Your identity will be kept confidential. Although we request certain specific information from you, we will not retain any individually identifiable information that we collect from you, such as your name or location. We collect these details only for the purpose of being able to contact you again, if necessary, during the duration of the study. Your name and contact details will be removed from the data as soon as we have finished collecting data in that village, and will not be shared with anyone else. First, we will ask you questions about yourself and your household, mainly about your socio-economic characteristics. The private interview is expected to last approximately 60 minutes. We will return to your village in a year, and then again in two years, and we hope and expect to interview you again to find out if and how your situation has changed. After today's survey, we will ask you to participate in a donation game which will take approximately 20 minutes.	

Field	Question	Answer		
	During this game, you will receive compensation of 2200 FCFA for playing the donation game. Although you can use these funds to participate in the game, this is not a requirement to participate in research, and you can simply choose to keep the funds for yourself if you wish. Your participation will be confidential, but other selected households will also participate. The group will have the opportunity to hear the results of the donation game at a village meeting before the research team leaves. We will meet at [DAY/TIME LOCATION]. We are not aware of any risk resulting from your participation. There is no direct, immediate or tangible benefit from participating in this survey, with the exception of the donation of 2200 FCFA that we offer to those who agree to participate in the games. However, in the longer term, the results of this study could inform policies related to agriculture, health and development in rural areas in Senegal. De-identified data from this study may be shared with the broader research community to advance science and health. We will remove or codify any personal information that could identify you before we share the files with other researchers, to ensure that, based on current scientific standards and known methods, no one will be able to identify you from the information we share. Despite these measures, we cannot guarantee the anonymity of your personal data. The principal investigator of this study is Professor Samba Mbaye of Gaston Berger University. Don't hesitate to ask questions now. If you have any questions later, you can contact Professor Mbaye at sambambayeugbcrdes@gmail.com or +221 776-056-415. If you have any questions or concerns regarding your rights as a subject of this study, you may contact the Cornell University Institutional Review Board (IRB) for Human Participants at +1 607-255-5138 or visit their website at http://www.irb.cornell.edu. You can also report concerns or complaints anonymously through Ethicspoint online at www.hotline.cornell.edu or by calling toll-free +1-866-293-3077. Ethicspoint is an independent organization that serves as an intermediary between the university and the person making the complaint to ensure anonymity. *Question relevant when: selected(${grappe_int} , "0")*			
consent *(required)*	1.1. Supervisor only: Do you agree to do the interview and participate in the study?		0	[0] No (Supervisor: Thank you for giving me your time! End of interview.)
			1	[1] Yes
			2	[2] RETURN TO THE FIELD IF NECESSARY
Questionnaire started *Group relevant when: ${consent} = 1*				
Questionnaire started > Household composition				
Questionnaire started > Household composition > 2.Identification and socio-demographic data				
hh_region *(required)*	2.1 Region *Question relevant when: 0*		8	Louga
			10	Saint Louis
			-777	Other region
hh_department *(required)*	2.2 Department *Question relevant when: 0*		1	DAKAR
			2	GUEDIAWAYE
			3	KEUR MASSAR
			4	PIKINE
			5	RUFISQUE
			6	BAMBEY
			7	DIOURBEL
			8	MBACKE
			9	FATICK
			10	FOUNDIOUGNE
			11	GOSSAS
			12	BIRKELANE
			13	KAFFRINE
			14	KOUNGHEUL
			15	MALEM HODDAR
			16	GUINGUINEO
			17	KAOLACK
			18	NIORO
			19	KEDOUGOU
			20	SALEMATA
			21	SARAYA
			22	KOLDA

Field	Question	Answer		
			23	MEDINA YORO FOULAH
			24	VELINGARA
			25	KEBEMER
			26	LINGUERE
			27	LOUGA
			28	KANEL
			29	MATAM
			30	RANEROU
			31	DAGANA
			32	PODOR
			33	SAINT LOUIS
			34	BOUNKILING
			35	GOUDOMP
			36	SEDHIOU
			37	BAKEL
			38	GOUDIRY
			39	KOUMPENTOUM
			40	TAMBACOUNDA
			41	MBOUR
			42	THIES
			43	TIVAOUANE
			44	BIGNONA
			45	OUSSOUYE
			46	ZIGUINCHOR
			-777	Other department
hh_commune *(required)*	2.4 Rural municipality *Question relevant when: 0*		1	MERMOZ/ SACRE-HEART
			2	NGOR
			3	OUAKAM
			4	YOFF
			5	FANN/POINT E/ FRIENDSHIP
			6	GOREE
			7	TAPED MOUTH/FASS/COLOBAN
			8	MEDINA
			9	PLATEAU
			10	COOKIE MAKER
			11	GODUPPEUL DERKLE
			12	GRAND DAKAR
			13	HANN/ BEL AIR
			14	HLM
			15	SICAP LIBERTE
			16	GRAND YOFF
			17	CAMBERENE
			18	GRAND YOFF
			19	SANITIZED PLOTS
			20	BRIDLE
			21	SOUTH GOLF
			22	MEDINA GOUNASS
			23	NDIAREME LIMAMOULAYE
			24	SAM NOTARY
			25	WAKHINANE NIMZATT
			26	KEUR MASSAR NORTH
			27	MALIKA
			28	KEUR MASSAR SOUTH
			29	JAXAAY PLOT NIAKOUL RAP
			30	YEUMBEUL NORTH
			31	YEUMBEUL SOUTH

Field	Question	Answer		
			32	DALIFORD
			33	DJIDAH THIAROYE KAO
			34	GUINAW RAIL NORTH
			35	GUINAW RAIL SOUTH
			36	PIKINE EST
			37	PIKINE NORTH (SOUTH)
			38	PIKINE WEST
			39	DIAMAGUENE/SICAP MBAO
			40	MBAO
			41	THIAROYE STATION
			42	THIAROYE SUR MER
			43	TIVAOUANE-DIAKSAO
			44	BAMBYLOR
			45	TIVAOUANE PEULH-NIAGHA
			46	YENE
			47	BARGNY
			48	DIAMNIADIO
			49	RUFISQUE CENTER (NORTH)
			50	RUFISK EAST
			51	WEST RUFISQUE
			52	SANGALKAM
			53	SEBIKOTANE
			54	SENDOU
			55	BABA GARAGE
			56	DINGUIRAYE
			57	KEUR SAMBA KANE
			58	BAMBEY
			59	GAWANE
			60	LAMBAYE
			61	NGOGOM
			62	REFANE
			63	NDANGALMA
			64	NDONDOL
			65	NGOYE
			66	THIAKHAR
			67	DIOURBEL
			68	DANKH SENE
			69	GADE STOPOVER
			70	KEUR NGALGOU
			71	NDINDY
			72	TAIBA MOUTOUPHA
			73	TOUBA LAPPE
			74	NDOULO
			75	NGOHE
			76	PATAR
			77	TOCKY STATION
			78	TOURE MBONDE
			79	DAROU NAHIM
			80	DAROU SALAM TYP
			81	DENDEYE GOUYE GUI
			82	KAEL
			83	MADINA
			84	NDIOUMANE TAIBA THIECKENE
			85	TAIBA TIECKENE
			86	TOUBA MBOUL
			87	MBACKE
			88	DALLA NGABOU

Field	Question	Answer		
			89	MISSIRAH
			90	NGHAYE
			91	TOUBA FALL
			92	TOUBA MOSQUE
			93	SADIO
			94	TAIF
			95	DIAKHAO
			96	DIOFFIOR
			97	FATICK
			98	DJILASSE
			99	FIMELA
			100	LOUL SESSENE
			101	PALMARIN FACAO
			102	DIAOULE
			103	MBELACADIAO
			104	NDIOB
			105	THIARE NDIALGUI
			106	NGAYOKHEME
			107	NIAKHAR
			108	PATAR
			109	DIARRERE
			110	DIOUROUP
			111	TATTAGUINE
			112	DIAGANE BARKA
			113	DIOSSONG
			114	DJILOR
			115	MMFA
			116	NIASSENE
			117	FOUNDIOUGNE
			118	KARANG POST
			119	BASSOUL
			120	DIONEWAR
			121	DJIRNDA
			122	PASSY
			123	SOKONE
			124	SOUM
			125	KEUR SALOUM DIANE
			126	KEUR SAMBA GUEYE
			127	NIORO ALASSANE TALL
			128	TOUBACOUTA
			129	COLOBANE
			130	MBAR
			131	GOSSAS
			132	NDIENE LAGANE
			133	OUADIOUR
			134	PATAR LIA
			135	BIRKELANE
			136	DIAMAL
			137	TOUBA MBELLA
			138	DIAMAL
			139	KEUR MBOUKI
			140	TOUBA MBELLA
			141	MABO
			142	MBEULEUP
			143	NDIOGNICK
			144	SEGRE GATTA
			145	BOULEL GOUMACK
			146	GNIBY
			147	KAHI
			148	KAFFRINE
			149	DIAMAGADIO

Field	Question	Answer		
			150	DIOKOUL MBELBOUCK
			151	KATHIOTE
			152	MEDINATOUL SALAM II
			153	NGANDA
			154	FASS THIEKENE
			155	IDA MOURIDE
			156	SALY ESCALE
			157	KOUNGHEUL
			158	LOUR STOPOVER
			159	RIBOT STOPOVER
			160	GAINTH PATHE
			161	MAKA YOPP
			162	MISSIRAH WADENE
			163	DAROU MINAM II
			164	KHELCOM
			165	NDIOBENE SAMBA LAMA
			166	NDIOUM NGAINTH
			167	MALEM HODDAR
			168	DIANKE SOUF
			169	SAGNA
			170	FASS
			171	GUINGUINEO
			172	KHELCOM BIRANE
			173	MBADAKHOUNE
			174	NDIAGO
			175	NGATHIE NAOUDE
			176	MBOSS
			177	DARA MBOSS
			178	GAGNICK
			179	NGUELOU
			180	OUROUR
			181	PANAL OUOLOF
			182	GANDIAYE
			183	KAHONE
			184	KAOLACK
			185	KEUR BAKA
			186	LATMINGUE
			187	THIARE
			188	KEUR SOCE
			189	NDIAFFATE
			190	NDIEDIENG
			191	NDOFFANE
			192	DYA
			193	NDIEBEL
			194	THIOMBY
			195	SIBASSOR
			196	KEUR MADIABEL
			197	KAYEMOR
			198	MEDINA SABAKH
			199	NGAYENE
			200	NIORO DU RIP
			201	DABALY
			202	DAROU SALAM
			203	GAINTHE KAYE
			204	PAOSKOTO
			205	POROKHANE
			206	TAIBA NIASSENE
			207	KEUR MABA DIAKHOU
			208	KEUR MANDONGO
			209	NDRAME ESCALE

Field	Question	Answer		
			210	WACK NGOUNA
			211	BANDAFASSI
			212	TURKEY
			213	NINEFECHA
			214	TOMBORONKOTO
			215	DIMBOLI
			216	FONGOLEMBI
			217	KEDOUGOU
			218	DAKATELY
			219	KEVOYE
			220	OUBADJI
			221	DAR SALAM
			222	ETHIOLO
			223	OUBADJI
			224	SALEMATA
			225	BEMBOU
			226	MEDINA BAFFE
			227	KHOSSANTO
			228	MISSIRAH SIRIMANA
			229	SABODALA
			230	SARAYA
			231	DABO
			232	DIOULACOLON
			233	GUIRO YERO BOCAR
			234	MEDINA EL HADJI
			235	TANKANTO STOPOVER
			236	KOLDA
			237	BAGADADJI
			238	COUMBACARA
			239	DIALAMBERE
			240	MAMPATIM
			241	MEDINA CHERIF
			242	SALIKEGNE
			243	SARE BIDJI
			244	THIETTY
			245	SARE YOBA DIEGA
			246	BADION
			247	FAFACOUROU
			248	MEDINA YORO FOULAH
			249	BIGNARABE
			250	BOUROUCO BIRANE CISSE
			251	KOULINTO
			252	NDORNA
			253	DINGUIRAYE
			254	KEREWANE
			255	NIAMING
			256	PATA
			257	BONCONTO
			258	LINKERING
			259	MEDINA GOUNASS
			260	SINTHIANG KOUNDARA
			261	DIAOUBE- KABENDOU
			262	KOUNKANE
			263	OUASSADOU
			264	PAKOUR
			265	PAROUMBA
			266	KANDIA
			267	KANDIAYE
			268	NEMATABA
			269	SARE COLY SALLE

Field	Question	Answer		
			270	VELINGARA
			271	DAROU MARNANE
			272	DAROU MOUSTY
			273	MBACKE CADIOR
			274	MBADIANE
			275	NDOYENE
			276	SAM YABAL
			277	TOUBA MERINA
			278	GUEOUL
			279	KEBEMER
			280	BADEGNE OUOLOF
			281	DIOKOUL DIAWRIGNE
			282	KAB GAYE
			283	NDANDE
			284	THIEPPE
			285	KANENE NDIOB
			286	LORO
			287	NGOURANE OUOLOF
			288	SAGATTA GUETH
			289	THIOLOM FALL
			290	BARKEDJI
			291	GASSANE
			292	THIARGNY
			293	THIEL
			294	DAHRA
			295	DODJI
			296	LABGAR
			297	OUARKHOKH
			298	LINGUERE
			299	MBEULEUKHE
			300	AFFE DJOLOFF
			301	BOULAL
			302	DEALI
			303	SAGATTA DJOLOF
			304	THIAMENE DJOLOF
			305	KAMB
			306	MBOULA
			307	DRILL TESSEKRE
			308	YANG YANG
			309	COKI
			310	ARDO WATCH
			311	PETE OUARACK
			312	THIAMENE CAYOR
			313	GANDE
			314	KEUR MOMAR SARR
			315	NGUER MALAL
			316	SYER
			317	LOUGA
			318	KELLE GUEYE
			319	MBEDIENE
			320	NGUIDILE
			321	NIOMRE
			322	NDIAGNE
			323	LEONA
			324	NGUEUNE SARR
			325	SAKAL
			326	DEMBANCANE
			327	HAMADY OUNARE
			328	KANEL
			329	ODOBERE
			330	AOURE

Field	Question	Answer		
			331	BOKILADJI
			332	ORKADIERE
			333	NDENDORY
			334	OURO SIDY
			335	SEMME
			336	SINTHIOU BAMAMBE-BANADJI
			337	WAOUNDE
			338	AGNAM CIVOL
			339	DABIA OBEDJI
			340	OREFONDE
			341	MATAM
			342	NGUIDILOGNE
			343	BOKIDIAWE
			344	NABADJI CIVOL
			345	OGO
			346	OUROSSOGUI
			347	THILOGNE
			348	RANEROU
			349	HOUDALAYE
			350	LOUGUERE THIOLY
			351	VELINGARA
			352	DAGANA
			353	GAE
			354	BOKHOL
			355	MBANE
			356	DIAMA
			357	NGNITH
			358	RONKH
			359	NDOMBO SANDJIRY
			360	RICHARD-TOLL
			361	ROSS-BETHIO
			362	ROSSO-SENEGAL
			363	AERE LAO
			364	BODE LAO
			365	DOUMGA LAO
			366	MEDINA NDIATHBE
			367	MERY
			368	DEMETTE
			369	GALOYA TOUCOULEUR
			370	DODEL
			371	GAMADJI SARRE
			372	GUEDE VILLAGE
			373	GOLLERE
			374	GUEDE CHANIER
			375	MBOUMBA
			376	NIANDANE
			377	NDIOUM
			378	PETE
			379	PODOR
			380	BOKE DIALLOUBE
			381	MBOLO BIRANE
			382	FANAYE
			383	NDIAYENE PENDAO
			384	WALALDE
			385	MPAL
			386	FASS NGOM
			387	GANDON
			388	NDIEBENE GANDIOLE
			389	SAINT LOUIS
			390	BOGHAL

Field	Question	Answer		
			391	DJINANI
			392	NDIAMALATHIEL
			393	TANKON
			394	BONA
			395	BOUNKILING
			396	DIACOUNDA
			397	INOR
			398	KANDION MANGANA
			399	BOUNKILING
			400	DIAMBATY
			401	DIAROUME
			402	FAOUNE
			403	MEDINA WANDIFA
			404	NDIAMACOUTA
			405	DIATTACOUNDA
			406	DJIBANAR
			407	KAOUR
			408	MANGAROUNGOU SANTO
			409	SIMBANDI BALANTE
			410	YARANG BALANTE
			411	GOUDOMP
			412	KARANTABA
			413	KOLIBANTANG
			414	SAMINE ESCALE
			415	BAGHERE
			416	DIOUBOUDOU
			417	NIAGHA
			418	SIMBANDI BRASSOU
			419	TANAFF
			420	DIANAH MALARY
			421	DIANAH BA
			422	DIENDE
			423	KOUSSY
			424	OUDOUCAR
			425	SAKAR
			426	SAME KANTA PEULH
			427	BEMET BIDJINI
			428	DJIBABOUYA
			429	SANSAMBA
			430	BAMBALI
			431	DJIREDJI
			432	MARSASSOUM
			433	SEDHIOU
			434	BAKEL
			435	BELE
			436	SINTHIOU FISSA
			437	DIAWARA
			438	GATHIARY
			439	MADINA FOULBE
			440	SADATOU
			441	TOUMBOURA
			442	KIDIRA
			443	BALLOU
			444	GABOU
			445	MOUDERY
			446	BALA
			447	GOUMBAYEL
			448	KOAR
			449	BOYNGUEL BAMBA
			450	DOUGUE

Field	Question	Answer		
			451	KOUSSAN
			452	SINTHIOU MAMADOU BOUBOU
			453	BANI ISRAEL
			454	BOUTOUCOUFARA
			455	DIANKE MAKHA
			456	KOMOTI
			457	GOUDIRY
			458	KOTHIARY
			459	KOULOR
			460	SINTHIOU BOCAR ALI
			461	BAMBA THIALENE
			462	KAHENE
			463	MEREO
			464	NDAME
			465	KOUMPENTOUM
			466	KOUTHIA GAYDI
			467	KOUTHIABA OUOLOF
			468	KOTO PASS
			469	PAYAR
			470	MALEM NIANI
			471	KOUSSANAR
			472	SINTHIOU MALEME
			473	MAKACOULIBATANG
			474	NDOGA BABACAR
			475	NIANI TOUCOULEUR
			476	DIALACOTO
			477	MISSIRAH
			478	NETTEBOULOU
			479	TAMBACOUNDA
			480	FISSEL
			481	NDIAGANIAO
			482	JOAL FADIOUTH
			483	MBORO
			484	MBOUR
			485	NGAPAROU
			486	NGUEKOKH
			487	POPENGUINE
			488	SALY PORTUDAL
			489	NGUENIENE
			490	SANDIARA
			491	SESSENE
			492	DIASS
			493	MALICOUNDA
			494	SINDIA
			495	SOMONE
			496	THIADIAYE
			four hundred ninety seven	KAYAR
			498	DIENDER GUEDJI
			499	FANDENE
			500	KEUR MOUSSA (KEUR MOUSSA)
			501	KHOMBOLE
			502	NOTTO
			503	TASSETTE
			504	PUT
			505	NDIEYENE SIRAKH
			506	NGOUNDIANE

Field	Question	Answer		
			507	THIENABA
			508	TOUBA TOUL
			509	THIES NORD
			510	THIES IS
			511	THIES WEST
			512	MBORO
			513	MEKHE
			514	DAROU KHOUDOSS
			515	MEOUANE
			516	TAIBA NDIAYE
			517	KOUL
			518	MERINA DAKHAR
			519	PEKESSE
			520	MBAYENE
			521	NGANDIOUF
			522	NIAKHENE
			523	THILMAKHA
			524	CHERIF LO
			525	MOUNT ROLLAND
			526	NOTTO GOUYE DIAMA
			527	PAMBAL
			528	WORST GOUREYE
			529	TIVAOUANE
			530	BIGNONA
			531	DIOULOULOU
			532	DJINAKI
			533	KAFOUNTINE
			534	KATABA I
			535	DJIBIDIONE
			536	OULAMPANE
			537	SINDIAN
			538	SUELLE
			539	BALINGORE
			540	DIEGOUNE
			541	KARTHIACK
			542	MANGAGOULACK
			543	MLOMP
			544	COUBALAN
			545	NIAMONE
			546	OUONCK
			547	TENGHORY
			548	THIONCK-ESSYL
			549	DJEMBERING
			550	SANTHIABA MANJACQUE
			551	MLOMP
			552	OUKOUT
			553	OUSSOUYE
			554	ADEANE
			555	BOUTOUPA CAMARA COUNDA
			556	NIAGUIS
			557	NIAGUIS
			558	ENAMPORE
			559	NYASSIA
			560	ZIGUINCHOR
			-777	Other municipality
hh_district *(required)*	2.3 The district *Question relevant when: 0*			
hh_arrondissement	2.3 District of this village (Put “Don’t know” if the respondent does not know)			

Field	Question	Answer		
hh_village *(required)*	2.5 Village *Question relevant when: 0*			
hh_number *(required)*	2.6 Number of members in the household *"Household definition: Please include all people who sleep here at least six months out of the year and who eat and prepare most meals together."* *Response constrained to: .<= 60*			
hh_phone *(required)*	2.7. Household telephone number (or telephone number of a household member) *Response constrained to: regex(.,'^(75|77|78|76|70|30|33)\d{7}$') or regex(.,'^(999)') or regex(., '^(888)') or regex(.,'^(777)') or regex(.,'^(666)')*			
hh_head_name_complete *(required)*	2.8 Name and first name of head of household			
hh_name_complete_resp *(required)*	2.9 Name and first name of the respondent (Put the name of the head of household if the respondent is the head of household)			
hh_age_resp *(required)*	2.10 Age of respondent			
hh_gender_resp *(required)*	2.11 Gender of respondent		1	1. Man
			2	2. Woman
hh_date *(required)*	2.13 Date			
hh_time *(required)*	2.14 Time			
Questionnaire started > Household composition > 3. Identification and census of household composition				
_roster_note	This is the list of household members. We will ask the following questions of each member of the household *"Household definition: Please include all people who sleep here at least six months out of the year and who eat and prepare most meals together."*			
Questionnaire started > Household composition > 3. Identification and census of household composition > Household composition roster (1)		(Repeated group)		
Questionnaire started > Household composition > 3. Identification and census of household composition > Household composition roster (1) > Household identification				
hh_first_name *(required)*	3.2.2. First name			
hh_name *(required)*	Name			
hh_surname	Nickname			
hh_gender *(required)*	Gender		1	1. Man
			2	2. Woman
hh_age *(required)*	Age			
hh_ethnicity *(required)*	Ethnicity		1	1. Wolof
			2	2. Tighten
			3	3. Peulh
			4	4. Diola
			5	5.Moor
			7	7. Lebou
			8	8. Soninke
			99	99.Other
hh_ethnicity_o *(required)*	Other ethnicity *Question relevant when: ${hh_ethnicity} = 99*			
hh_relation_with *(required)*	Relationship with the head of household		1	01. Head of household (himself)
			2	02. Spouse of head of household
			3	03. Son/daughter of the home
			4	05. Spouse of the son/daughter of the head of the family
			5	05. Grandson/granddaughter of the head of the family
			6	06. Father/Mother of the HH
			7	07. Father/Mother of the spouse of the head of the family
			8	08. Brother/sister of the head of the family
			9	09. Brother/sister of the HH's spouse
			10	10. Adopted child
			11	11. House help
			12	12. Other person related to the head of the family
			13	13. Other person not related to the head of the family
hh_relation_with_o *(required)*	Other form of relationship *Question relevant when: ${hh_relation_with} = 12 or ${hh_relation_with} = 13*			
hh_education_skills *(required)*	Education - Skills (multiple choice)		0	0. None

Field	Question	Answer		
	Response constrained to: if(selected(., 0), count-selected(.) = 1, count-selected(.) >= 1)		1	1. Can write a short letter to his family
			2	2. Comfortable with numbers and calculations
			3	3. Arabizing/can read the Quran in Arabic
			4	4. Fluent in Wolof/Pulaar
			5	5. Can read a newspaper in French
hh_education_level *(required)*	Level of education achieved		0	0. No level
			1	1. Primary level
			2	2. Secondary level
			3	3. Higher level
			4	4. Technical and vocational school
			99	99. Other level
hh_education_level_o *(required)*	Other level *Question relevant when: ${hh_education_level} = 99*			
hh_education_year_achieve *(required)*	How many years of education has [hh_full_name_calc] completed? *Question relevant when: ${hh_education_level} != 0* *Response constrained to: .<= ${hh_age}*			
hh_main_activity *(required)*	Main activity outside the home		0	0. Unemployed
			1	1. Agriculture
			2	2. Breeding
			3	3. Fishing
			4	4. Forestry
			5	5. Craftsmanship
			6	6. Trade
			7	7. Salaried employment
			8	8. Transportation
			9	9. Harvest/collection
			10	11. Pupil/student
			99	99. Other (s) to be specified)
hh_main_activity_o *(required)*	Other activity *Question relevant when: ${hh_main_activity} = 99*			
hh_mother_live *(required)*	Was [hh_full_name_calc] 's mother living in the village on the day [hh_full_name_calc] was born ?		1	Yes
			0	No
			2	Don't know / Don't answer
hh_relation_imam *(required)*	Relationship of [hh_full_name_calc] with the Imam or the Village Chief?		1	1. Imam
			2	2. Village chief
			3	3. Both
			4	4. No relationship
Questionnaire started > Household composition > 3. Identification and census of household composition > Household composition roster (1) > Presence in the household				
hh_presence_winter *(required)*	Presence in winter/rainy season		1	Yes
			0	No
			2	Don't know / Don't answer
hh_presence_dry *(required)*	Presence in dry season		1	Yes
			0	No
			2	Don't know / Don't answer
hh_active_agri *(required)*	Is he/she an active agricultural worker?		1	Yes
			0	No
			2	Don't know / Don't answer
hh_01 *(required)*	3.16. In the last 7 days how many hours did [hh_full_name_calc] spend on household chores or preparing meals? *Response constrained to: .>= 0 and .<= 168 or .= -9*			
hh_02 *(required)*	3.17. During the last 7 days how many hours did [hh_full_name_calc] spend fetching water? *Response constrained to: .>= 0 and .<= 168 or .= -9*			
hh_03 *(required)*	3.18. In the past 12 months, has [hh_full_name_calc] worked in domestic agricultural activities (including activities related to livestock and fishing), whether for sale or for household food?		1	Yes
			0	No
			2	Don't know / Don't answer
hh_04 *(required)*	3.19. In the last 7 days, how many hours did [hh_full_name_calc] work in domestic agricultural activities (including livestock and fishing activities), whether for sale or for household food?			

Field	Question	Answer
	Question relevant when: ${hh_03} = 1 *Response constrained to: .>= 0 and .<= 168 or .= -9*	
hh_05 *(required)*	3.20.During the planting period of the last crop year, how many hours did [hh_full_name_calc] work on agricultural activities in a normal week (7 day period)? *Question relevant when: ${hh_03} = 1* *Response constrained to: .>= 0 and .<= 168 or .= -9*	
hh_06 *(required)*	3.21. During the peak growth period of the last crop year (after planting and before harvest), how many hours did [hh_full_name_calc] work on agricultural activities in a typical week (period 7 days)? *Question relevant when: ${hh_03} = 1* *Response constrained to: .>= 0 and .<= 168 or .= -9*	
hh_07 *(required)*	3.22. During the harvest period of the last crop year, how many days did [hh_full_name_calc] work in agricultural activities in a normal week (7 day period)? *Question relevant when: ${hh_03} = 1* *Response constrained to: .>= 0 and .<= 168 or .= -9*	
hh_08 *(required)*	3.23. During the last 7 days, how many hours did [hh_full_name_calc] spend working in a trade, a processing activity, or a market service for his own account or for the account of another member of the household? For example as a craftsman or trader *Response constrained to: .>= 0 and .<= 168 or .= -9*	
hh_09 *(required)*	3.24. During the last 7 days, how many hours did [hh_full_name_calc] spend working for a company, for the government, for a boss or any other person who is not a member of your household? (even part-time or occasionally) *Response constrained to: .>= 0 and .<= 168 or .= -9*	
hh_10 *(required)*	3.25. Over the past 12 months, on average how many hours per week did [hh_full_name_calc] spend within 1 meter of or in a surface water source? *Response constrained to: .>= 0 and .<= 168 or .= -9*	
hh_11 *(required)*	3.26. What source(s) of surface water? 1 = Lake, 2 = pond, 3 = river, 4 = irrigation canal, 99 = other (to be specified) *Question relevant when: ${hh_10} > 0*	1 1. Lake 2 2. Pond 3 3. River 4 4. Irrigation channel 99 99. Other, give details)
hh_11_o *(required)*	Other source *Question relevant when: ${hh_11} = 99*	
hh_12 *(required)*	3.27. In the past 12 months, why did [hh_full_name_calc] spend time near (< 1 m) or in the water source(s)? (multiple choices) *Question relevant when: ${hh_10} > 0*	1 1 = fetch water for the household 2 2= give water to livestock 3 3= fetch water for agriculture 4 4=wash clothes 5 5=do the dishes 6 6 = harvest aquatic vegetation 7 7=swim/bathe 8 8=play
hh_12_a *(required)*	Are there other reasons why [hh_full_name_calc] spent time near (< 1 m) or in the water source(s)? *Question relevant when: ${hh_10} > 0*	1 Yes 0 No 2 Don't know / Don't answer
hh_12_o *(required)*	Other specify *Question relevant when: ${hh_12_a} = 1*	
Questionnaire started > Household composition > 3. Identification and census of household composition > Household composition roster (1) > hh_12 roster (1)		(Repeated group)
hh_13 *(required)*	3.28. Over the past 12 months, on average how many hours per week did [hh_full_name_calc] spend at [hh_12-name] near (< 1 m) or in the water source(s)? *Question relevant when: ${hh_10} > 0* *Response constrained to: .>= 0 and .<= 168 or .= -9*	
hh_13_o *(required)*	3.28.other. Over the past 12 months, on average how many hours per week did [hh_full_name_calc] spend at [hh_12_o] near (< 1 m) or in the water source(s)? *Question relevant when: ${hh_12_a} = 1* *Response constrained to: .>= 0 and .<= 168 or .= -9*	
hh_13_warning *(required)*	The number of hours for the sum of all activities has exceeded the overall number of hours declared previously. *Question relevant when: ${hh_13_sum} > ${hh_10}*	
hh_14 *(required)*	3.29. Over the past 12 months, how much aquatic vegetation did he/she collect near (< 1 m) or in the water source(s) per week, on average (in kg)? *Question relevant when: ${hh_10} > 0 and selected(${hh_12} , "6")* *Response constrained to: .>= 0 or .= -9*	
hh_15 *(required)*	3.30. How did he use aquatic vegetation?	1 1= Sell

Field	Question	Answer		
	Question relevant when: ${hh_10} > 0 and selected(${hh_12} , "6")		2	2= Fertilizer
			3	3= Livestock feed
			4	4=Raw material for the biodigester
			5	5= Nothing
			99	99= Other (to be specified)
hh_15_o *(required)*	Other specify *Question relevant when: ${hh_15} = 99*			
hh_16 *(required)*	3.31. During the last 12 months on average how many hours per week did [hh_full_name_calc] spend producing fertilizer, purchasing it, or applying it on the field? *Question relevant when: ${hh_10} > 0* *Response constrained to: .>= 0 and .<= 168 or .= -9*			
hh_17 *(required)*	3.32. During the last 12 months how many hours did [hh_full_name_calc] spend on producing livestock feed per week on average? *Question relevant when: ${hh_10} > 0* *Response constrained to: .>= 0 and .<= 168 or .= -9*			
hh_18 *(required)*	3.33. In the last 7 days how many hours did [hh_full_name_calc] spend near (< 1 m) or in a surface water source? *Question relevant when: ${hh_10} > 0* *Response constrained to: .>= 0 and .<= 168 or .= -9*			
hh_19 *(required)*	3.34. What source(s) of surface water? *Question relevant when: ${hh_10} > 0 and ${hh_18} > 0*		1	1. Lake
			2	2. Pond
			3	3. River
			4	4. Irrigation channel
			99	99. Other, give details)
hh_19_o *(required)*	Other specify *Question relevant when: ${hh_19} = 99*			
hh_20 *(required)*	3.35. In the last 7 days, why did [hh_full_name_calc] spend time near (< 1 m) or in the water source(s)? (multiple choices) *Question relevant when: ${hh_10} > 0 and ${hh_18} > 0*		1	1 = fetch water for the household
			2	2= give water to livestock
			3	3= fetch water for agriculture
			4	4=wash clothes
			5	5=do the dishes
			6	6 = harvest aquatic vegetation
			7	7=swim/bathe
			8	8=play
hh_20_a *(required)*	3.35_other. Are there other reasons why [hh_full_name_calc] spent time near (< 1 m) or in the water source(s)? *Question relevant when: ${hh_10} > 0 and ${hh_18} > 0*		1	Yes
			0	No
			2	Don't know / Don't answer
hh_20_o *(required)*	Other specify *Question relevant when: ${hh_20_a} = 1*			
Questionnaire started > Household composition > 3. Identification and census of household composition > Household composition roster (1) > hh_12 roster (1)		(Repeated group)		
hh_21 *(required)*	3.36. During the last 7 days how many hours did [hh_full_name_calc] spend with [hh_20-name] near (< 1 m) or in the water source(s)? *Question relevant when: ${hh_10} > 0* *Response constrained to: .>= 0 and .<= 168 or .= -9*			
hh_21_o *(required)*	3.36.other. During the last 7 days how many hours did [hh_full_name_calc] spend at [hh_20_o] near (< 1 m) or in the water source(s)? *Question relevant when: ${hh_20_a} = 1* *Response constrained to: .>= 0 and .<= 168 or .= -9*			
hh_21_warning *(required)*	The number of hours for the sum of all activities has exceeded the overall number of hours declared previously. *Question relevant when: ${hh_21_sum} > ${hh_18}*			
hh_22 *(required)*	3.37. Over the past 7 days, how much aquatic vegetation has he/she collected near (< 1 m) or in the water source(s) (in kg)? *Question relevant when: selected(${hh_20} , "6") and (${hh_10} > 0 and ${hh_18} > 0)* *Response constrained to: .>= 0 or .= -9*			
hh_23 *(required)*	3.38. How did he use aquatic vegetation? *Question relevant when: selected(${hh_20} , "6") and (${hh_10} > 0 and ${hh_18} > 0)*		1	1= Sell
			2	2= Fertilizer
			3	3= Livestock feed
			4	4=Raw material for the biodigester
			5	5= Nothing
			99	99= Other (to be specified)

Field	Question	Answer		
hh_23_o *(required)*	Other specify *Question relevant when: selected(${hh_23} , "99")*			
hh_24 *(required)*	3.39. During the last 7 days how many hours did [hh_full_name_calc] spend producing fertilizer, purchasing it, or applying it on the field? *Response constrained to: .>= 0 and .<= 168 or .= -9*			
hh_25 *(required)*	3.40. During the last 7 days how many hours did [hh_full_name_calc] spend producing livestock feed? *Response constrained to: .>= 0 and .<= 168 or .= -9*			
Questionnaire started > Household composition > 3. Identification and census of household composition > Household composition roster (1) > HH group *Group relevant when: ${hh_age} >= 4 and ${hh_age} <= 18*				
hh_26 *(required)*	3.41. Has [hh_full_name_calc] studied or is he currently studying in a formal school?		1	Yes
			0	No
			2	Don't know / Don't answer
hh_27 *(required)*	3.42. Did [hh_full_name_calc] attend non-formal school or non-formal training? *Question relevant when: ${hh_26} = 0*		1	Yes
			0	No
			2	Don't know / Don't answer
hh_28 *(required)*	3.43. What type of non-formal education did [hh_full_name_calc] attend? *Question relevant when: ${hh_27} = 1*		1	1. The Koranic school
			2	2. Professional training
			3	3. Literacy lessons
			99	99. Others (language courses, etc.)
hh_29 *(required)*	3.44. What is the highest level and grade that [hh_full_name_calc] achieved in school? *Question relevant when: ${hh_26} = 1*		1	1. primary - 1st year
			2	2. primary - 2nd year
			3	3. primary - 3rd year
			4	4. primary - 4th year
			5	5. primary - 5th grade
			6	6. primary - 6th grade
			7	7. Secondary 1 (middle) - 7th year
			8	8. Secondary 1 (Middle) - 8th year
			9	9. Secondary 1 (Middle) - 9th year
			10	10. Secondary 1 (Middle) - 10th year
			11	11. Secondary 2 (higher) – 11th year
			12	12. Secondary 2 (higher) – 12th year
			13	13. Secondary 2 (higher) - 13th year
			14	14. More than upper secondary education (e.g. university)
			99	99. Other (to be specified)
hh_29_o	Other specify *Question relevant when: ${hh_29} = 99*			
hh_30 *(required)*	3.45. Did [hh_full_name_calc] attend any school during the past 2022-23 school year? *Question relevant when: ${hh_26} = 1*		1	Yes
			0	No
			2	Don't know / Don't answer
hh_31 *(required)*	3.46. What result did [hh_full_name_calc] achieve in the year 2022/2023? *Question relevant when: ${hh_30} = 1*		1	1. Graduated, studies completed
			2	2. Moving to the next class
			3	3. Failure, repetition
			4	4. Failure, dismissal
			5	5. Dropping out during the year
hh_32 *(required)*	3.47. Is [hh_full_name_calc] attending school during this 2023/2024 school year? *Question relevant when: ${hh_26} = 1*		1	Yes
			0	No
			2	Don't know / Don't answer
hh_33 *(required)*	3.48. Regarding other students in her class, do you think that [hh_full_name_calc] 's academic performance is lower than that of most students, about the same as that of most students, or higher than that of most students? *Question relevant when: ${hh_26} = 1 and ${hh_32} = 1*		1	1 = lower
			2	2 = about the same
			3	3 = superior
hh_34 *(required)*	3.49. How old was [hh_full_name_calc] when he/she stopped going to school? *Question relevant when: ${hh_32} = 0*			

Field	Question	Answer		
hh_35 *(required)*	3.50. What is the level and class attended by [hh_full_name_calc] during the year 2023/2024? *Question relevant when: ${hh_32} = 1*		1	1. primary - 1st year
			2	2. primary - 2nd year
			3	3. primary - 3rd year
			4	4. primary - 4th year
			5	5. primary - 5th grade
			6	6. primary - 6th grade
			7	7. Secondary 1 (middle) - 7th year
			8	8. Secondary 1 (Middle) - 8th year
			9	9. Secondary 1 (Middle) - 9th year
			10	10. Secondary 1 (Middle) - 10th year
			11	11. Secondary 2 (higher) – 11th year
			12	12. Secondary 2 (higher) – 12th year
			13	13. Secondary 2 (higher) - 13th year
			14	14. More than upper secondary education (e.g. university)
			99	99. Other (to be specified)
hh_36 *(required)*	3.51. Do you think that [hh_full_name_calc] will succeed at his declared academic level in the 2023/2024 race? *Question relevant when: ${hh_32} = 1*		1	Yes
			0	No
			2	Don't know / Don't answer
hh_37 *(required)*	3.52. In the past 12 months, has [hh_full_name_calc] ever missed more than one consecutive week of school due to illness? *Question relevant when: ${hh_32} = 1*		1	Yes
			0	No
			2	Don't know / Don't answer
hh_38 *(required)*	3.53. In the last 7 days, on how many days did [hh_full_name_calc] go to school for classes? *Question relevant when: ${hh_32} = 1* *Response constrained to: .>= 0 and .<= 7 or .= -9*			
final_list	Here is the final list of household members you declared. Can you confirm that all members of the household have been taken into account?		1	
			2	...
			3	...
			4	...
			5	...
			6	...
			7	...
			8	...
			9	...
			10	...
			11	...
			12	...
			13	...
			14	...
			15	...
			16	...
			17	...
			18	...
			19	...
			20	...
			21	...
			22	...
			23	...
			24	...
			25	...
			26	...
			27	...
			28	...
			29	...

Field	Question	Answer
		30 ...
		31 ...
		32 ...
		33 ...
		34 ...
		35 ...
		36 ...
		37 ...
		38 ...
		39 ...
		40 ...
		41 ...
		42 ...
		43 ...
		44 ...
		45 ...
		46 ...
		47 ...
		48 ...
		49 ...
		50 ...
		51 ...
		52 ...
		53 ...
		54 ...
		55 ...
		56 ...
		57 ...
		58 ...
		59 ...
		60 ...
final_list_confirm *(required)*	Has the list been confirmed?	1 Yes 0 No
final_list_note *(required)*	Please go back to add the missing household members. *Question relevant when: ${final_list_confirm} = 0*	
Questionnaire started > Knowledge		
_knowledge_note_01	Knowledge of the definition of bilharzia	
knowledge_01 *(required)*	4.1. Have you ever heard of bilharzia?	1 Yes 0 No 2 Don't know / Don't answer
knowledge_02 *(required)*	4.2. Can you tell us in simple terms what bilharzia is? *Question relevant when: ${knowledge_01} = 1*	
knowledge_03 *(required)*	4.3.Do you think bilharzia is a disease? *Question relevant when: ${knowledge_01} = 1*	1 Yes 2 No 3 Do not know
knowledge_04 *(required)*	4.4. If you think schistosomiasis is a disease, do you think it is a serious disease? *Question relevant when: ${knowledge_03} = 1*	1 Yes 0 No 2 Don't know / Don't answer
knowledge_05 *(required)*	4.5. What is the cause of bilharzia? *Question relevant when: ${knowledge_04} = 1*	1 1. Viruses 2 2. Worm 3 3. Bacteria 4 4. Water 5 5. I don't know 99 99. Other
knowledge_05_o *(required)*	Other cause *Question relevant when: ${knowledge_05} = 99*	
_knowledge_note_02	Knowledge of schistosomiasis diagnosis	
knowledge_06 *(required)*	4.6. How do you think you know if someone has bilharzia? *Response constrained to: if(selected(., 6), count-selected(.) = 1, count-selected(.) >= 1)*	1 1. When they have a fever 2 2. In case of diarrhea 3 3. In case of stomach pain 4 4. In case of blood in the urine

Field	Question	Answer	
		5	5. In case of itching
		6	6. I don't know if this is the case
knowledge_07 *(required)*	4.7. Do you know if there is a hospital test to detect bilharzia in an individual?	1	Yes
		0	No
		2	Don't know / Don't answer
knowledge_08 *(required)*	4.8. If yes which ? *Question relevant when: ${knowledge_07} = 1*		
_knowledge_note_03	Knowledge of schistosomiasis prevention		
knowledge_09 *(required)*	4.9. How can a person protect themselves against bilharzia?	1	1. Avoid urinating in the river
		2	2. Avoid defecating in the river
		3	3. Avoid going to the river
		4	4. Avoid walking barefoot
		5	5. Sleeping under a mosquito net
		6	6. Remove plants from water sources
		99	99. Other specify)
knowledge_09_o *(required)*	Other precaution *Question relevant when: selected(${knowledge_09} , "99")*		
_knowledge_note_04	Knowledge of schistosomiasis transmission:		
knowledge_10 *(required)*	4.10. How can you get bilharzia? *Response constrained to: if(selected(., 7), count-selected(.) = 1, count-selected(.) >= 1)*	1	1. While walking barefoot
		2	2. By eating without washing your hands
		3	3. On the way to the river
		4	4. Drinking water from the river
		5	5. By being bitten by mosquitoes
		6	6. During sexual intercourse with a person infected with bilharzia
		7	7. I don't know
		99	99. Other specification
knowledge_10_o *(required)*	Other *Question relevant when: selected(${knowledge_10} , "99")*		
knowledge_11 *(required)*	4.11. Do you think bilharzia is contagious?	1	Yes
		0	No
		2	Don't know / Don't answer
knowledge_12 *(required)*	4.12. Do you know the animal that transmits bilharzia?	1	1. I don't know
		2	2. Mosquitoes
		3	3. Large land snails
		4	4. Small river snails
		5	5. Flies
		99	99. Other: specify
knowledge_12_o *(required)*	Other animal *Question relevant when: ${knowledge_12} = 99*		
_knowledge_note_05	Knowledge of schistosomiasis treatment:		
knowledge_13 *(required)*	4.13 Do you think bilharzia can be cured without treatment?	1	Yes
		0	No
		2	Don't know / Don't answer
knowledge_14 *(required)*	4.14 Do you think there is a medicine to treat bilharzia?	1	Yes
		0	No
		2	Don't know / Don't answer
knowledge_15 *(required)*	4.15 Do you know a traditional treatment for bilharzia?	1	Yes
		0	No
		2	Don't know / Don't answer
knowledge_16 *(required)*	4.16 Do you think that this traditional treatment is effective, that it really cures? *Question relevant when: ${knowledge_15} = 1*	1	Yes
		0	No
		2	Don't know / Don't answer
knowledge_17 *(required)*	4.17 Do you have any comments on the treatment of bilharzia? *Question relevant when: 0*		
_knowledge_note_06	Practices related to exposure to bilharzia:		

Field	Question	Answer
knowledge_18 *(required)*	4.17 Have you been in contact with a body of water (lake, river, stream, marsh, etc.) in the last 12 months?	1 Yes 0 No 2 Don't know / Don't answer
knowledge_19 *(required)*	4.18 What type of body of water was it? *Question relevant when: ${knowledge_18} = 1*	1 1. Lake 2 2. River 3 3. Watercourse 99 99. Others
knowledge_19_o *(required)*	Other type of water *Question relevant when: ${knowledge_19} = 99*	
knowledge_20 *(required)*	4.20 Where did you come into contact with the body of water? *Question relevant when: ${knowledge_18} = 1*	1 1. At home 2 2. At school/work 3 3. At planting 99 99. Other
knowledge_20_o *(required)*	Other location *Question relevant when: ${knowledge_20} = 99*	
knowledge_21 *(required)*	4.21 How often? *Question relevant when: ${knowledge_18} = 1*	1 1. Every day 2 2. Every week 3 3. A few times a month
knowledge_22 *(required)*	4.22 When was the last time you went there? *Question relevant when: ${knowledge_18} = 1*	1 1. Today 2 2. Yesterday 3 3. This week 4 4. Last week 5 5. This month 6 6. Last month 7 7. Before last month
knowledge_23 *(required)*	4.23 What are the reasons why you were (or are) in contact with the watercourse? *Question relevant when: ${knowledge_18} = 1*	1 1. For household chores (dishes, laundry, etc.) 2 2. To fetch water 3 3. To bathe 4 4. Play 5 5. Fish 6 6. For my agricultural activities 99 99. For other reasons
knowledge_23_o *(required)*	Other reason *Question relevant when: selected(${knowledge_23} , "99")*	
Questionnaire started > State of health		
_health_note	This section concerns all members of the household, the respondent can be unique (women or head of household). Household definition: Please include all people who usually sleep here and who eat and have meals together.	
Questionnaire started > State of health > Health Roster (1)		(Repeated group)
_health_note_2	We are going to talk about [health-name] who is [health-age] years old.	
health_5_2 *(required)*	5.2. Has [health-name] become ill in the last 12 months?	1 Yes 0 No 2 Don't know / Don't answer
health_5_3 *(required)*	5.3. What type of illness or injury did he/she suffer from? *Question relevant when: ${health_5_2} = 1*	1 1. Malaria 2 2. Bilharzia 3 3. Diarrhea 4 4. Injuries 5 5. Dental problems 6 6. Skin Problems 7 7. Eye problems 8 8. Throat Problems 9 9. Stomach aches 10 10. Fatigue 11 12. STI 12 13. trachoma 13 14. Onchocerciasis 14 15.lymphatic filariasis 99 99.others (to be specified)
health_5_3_o *(required)*	Other illness *Question relevant when: selected(${health_5_3} , "99")*	

Field	Question	Answer
health_5_4 *(required)*	5.4. How many days did he/she miss work/school due to illness or injury in the past month? *Question relevant when: ${health_5_2} = 1* *Response constrained to: .>= 0 and .<= 31 or .= -9*	
health_5_5 *(required)*	5.5. Has he/she received medication for the treatment of schistosomiasis in the past 12 months?	1 Yes 0 No 2 Don't know / Don't answer
health_5_6 *(required)*	5.6. Has this person ever been diagnosed with schistosomiasis?	1 Yes 0 No 2 Don't know / Don't answer
health_5_7 *(required)*	5.7. Has this person been affected by schistosomiasis in the past 12 months? *Question relevant when: 0*	1 Yes 0 No 2 Don't know / Don't answer
health_5_8 *(required)*	5.8. Has this person had blood in their urine in the past 12 months?	1 Yes 0 No 2 Don't know / Don't answer
health_5_9 *(required)*	5.9. Has this person had blood in their stools in the past 12 months?	1 Yes 0 No 2 Don't know / Don't answer
health_5_10 *(required)*	5.10. Have you consulted anyone for an illness in the last 12 months?	1 Yes 0 No 2 Don't know / Don't answer
health_5_11 *(required)*	5.11. What type of health service/health professional did this person first consult? *Question relevant when: ${health_5_10} = 1*	1 01. Hut/health post 2 02. Traditional healer/marabout 3 03. Doctor/private clinic 4 04. Pharmacy/pharmacist 5 05. Midwife/nurse 6 06. Public hospital 7 07. Health center 8 08. Private clinic/dispensary hospital 9 09. Company doctor 99 99.other (to be specified)
health_5_11_o *(required)*	5.11_o Other type of health service *Question relevant when: ${health_5_11} = 99*	
health_5_12 *(required)*	5.12. What is the distance in km that separates you from this service or health professional? *Question relevant when: ${health_5_10} = 1*	
health_5_13 *(required)*	5.13. Have you benefited from any awareness campaigns on schistosomiasis in the last five years?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > State of health > Info campaign *Group relevant when: ${health_5_13} = 1*		
health_5_14_note	5.14 If yes, which campaigns are these?	
health_5_14_a *(required)*	has. Manifestation of bilharzia *Question relevant when: ${health_5_13} = 1*	1 Yes 0 No 2 Don't know / Don't answer
health_5_14_b *(required)*	b. practical to avoid bilharzosis *Question relevant when: ${health_5_13} = 1*	1 Yes 0 No 2 Don't know / Don't answer
health_5_14_c *(required)*	vs. measure to take for the treatment of bilharzia? *Question relevant when: ${health_5_13} = 1*	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Assets		
_note_active	Assets	
list_assets *(required)*	6.1. Do you have any of the following items in your household today? In working order	1 has. Iron (electric/non-electric) 2 b. Sewing machine 3 vs. Television 4 d. Car 5 e. Fridge 6 f. Radio 7 g. Watch/clock

Field	Question	Answer		
			8	h. Bed or mattress
			9	i. Bike
			10	j. Motorbike
			11	k. Table
			12	L. Chair
			13	not. Air conditioner
			14	o. Computer
			15	p. Cellphone
			16	q. Home
Questionnaire started > Assets > Active roster (1)		(Repeated group)		
_active_number *(required)*	6.2. How many [assets-name] do you have?			
list_assets_o	Is there another asset that we have not taken into account?		1	Yes
			0	No
			2	Don't know / Don't answer
assets_o *(required)*	Other Assets *Question relevant when: ${list_actif_o} = 1*			
assets_o_int *(required)*	6.2. How many [assets_o] do you have? *Question relevant when: ${list_actif_o} = 1*			
list_agri_equip *(required)*	6.3 Does your household currently have any of the following equipment? In working order		1	a.Plow
			2	b.Arara
			3	c. Draft animals
			4	d. Cart
			5	e.Tractor
			6	f.Sprayer
			7	g.Motorcycle Pumps Group (GMP)
			8	h.Hoes
			9	i.Hilaire
			10	j.Daba/sickle
			11	k.Seeder
			12	l.Kadiandou
			13	m.Fanting
			14	not. Solar panels
Questionnaire started > Assets > Agricultural equipment (1)		(Repeated group)		
_agri_number *(required)*	How many [agri-name]s have you had? *Question relevant when: not(selected(${list_agri_equip} , "99"))*			
list_agri_equip_o	Is there any other agricultural equipment that we have not taken into account?		1	Yes
			0	No
			2	Don't know / Don't answer
list_agri_equip_o_t *(required)*	Other list *Question relevant when: ${list_agri_equip_o} = 1*			
list_agri_equip_int *(required)*	How many [list_agri_equip_o_t] have you had? *Question relevant when: ${list_agri_equip_o} = 1*			
agri_6_5 *(required)*	6.5 Did you rent the house or are you the owner?		1	[1] Rented
			2	[2] owner
			3	[3] Non-owner resident who does not pay rent
			97	[97] don't know
			98	[98] does not respond
agri_6_6 *(required)*	6.6. How many separate rooms does the household have?			
agri_6_7 *(required)*	6.7 Does anyone in your household have a bank account?		0	0. No
			1	1. Yes
			97	97. Don't know
			98	98. No response
agri_6_8 *(required)*	6.8 Does anyone in your household participate in informal savings and credit mechanisms (for example, savings and credit associations or rotating savings and credit groups)?		0	0. No
			1	1. Yes
			97	97. Don't know
			98	98. No response
agri_6_9 *(required)*	6.9 Is anyone in your household part of a village women's group?		0	0. No
			1	1. Yes
			97	97. Don't know

Field	Question	Answer		
			98	98. No response
agri_6_10 *(required)*	6.10 Do you have a mobile money account (e.g. Orange Money, Wave, Tigo Cash, Freemoney, K-PAYE)?		0	0. No
			1	1. Yes
			97	97. Don't know
			98	98. No response
agri_6_11 *(required)*	6.11 If you needed 250,000 FCFA by next week (for a medical emergency or other unexpected expense), would you be able to get it?		0	0. No
			1	1. Yes
			97	97. Don't know
			98	98. No response
agri_6_12 *(required)*	6.12 How could you get this money (multiple choice answer)? *Question relevant when: ${agri_6_11} = 1*		1	[1] Bank loan
			2	[2] Borrow from the village savings/loan account (tontine, group of individual lenders, etc.)
			3	[3] Borrow from neighbors, friends or relatives
			4	[4] Use your own savings account
			5	[5] Sell crops or livestock
			6	[6] Sell other goods or properties
			7	[7] Pocket/house money
			99	[99] Other (please specify): _____
agri_6_12_o *(required)*	6.12_o Another possibility to get the money *Question relevant when: selected(${agri_6_12} , "99")*			
agri_6_14 *(required)*	6.13 Did at least one household member cultivate land (including perennial crops), whether owned or not, during the last growing season?		1	Yes
			0	No
			2	Don't know / Don't answer
Questionnaire started > Assets > _Parcel Owner *Group relevant when: ${agri_6_14} = 1*				
agri_6_15_note	INTERVIEWER: FIRST LIST ALL FIELDS, THEN PLOTS WITHIN THE FIELDS CULTIVATED BY THE HOUSEHOLD IN 2023)			
agri_6_15 *(required)*	How many plots within the fields cultivated by the household?			
Questionnaire started > Assets > _Parcel Owner > List of parcels (1)		(Repeated group)		
plot-note	Plot number 1			
agri_6_16 *(required)*	Field numbering order			
agri_6_17 *(required)*	Parcel number in the field			
agri_6_18 *(required)*	What is the management method for the plot?		1	1=Individual
			2	2=Collective
agri_6_19 *(required)*	What is the serial number of the person who cultivates the plot (use the identifiers in section B on the demographic characteristics of the household)?		1	
			2	...
			3	...
			4	...
			5	...
			6	...
			7	...
			8	...
			9	...
			10	...
			11	...
			12	...
			13	...
			14	...
			15	...
			16	...
			17	...
			18	...
			19	...
			20	...
			21	...
			22	...

Field	Question	Answer	
		23	...
		24	...
		25	...
		26	...
		27	...
		28	...
		29	...
		30	...
		31	...
		32	...
		33	...
		34	...
		35	...
		36	...
		37	...
		38	...
		39	...
		40	...
		41	...
		42	...
		43	...
		44	...
		45	...
		46	...
		47	...
		48	...
		49	...
		50	...
		51	...
		52	...
		53	...
		54	...
		55	...
		56	...
		57	...
		58	...
		59	...
		60	...
agri_6_20 *(required)*	What is the main crop grown on this plot during the last growing season?	1	RICE
		2	BUT
		3	MIL
		4	SORGHUM
		5	NIEBE
		6	CASSAVA
		7	SWEET POTATO
		8	POTATO
		9	YAM
		10	TARO
		11	TOMATOES
		12	CARROTS
		13	ONIONS
		14	CUCUMBERS
		15	PEPPERS
		16	PEANUTS
		17	BEANS
		18	PEAS
		99	OTHER: SPECIFY)
agri_6_20_o *(required)*	Other main crop *Question relevant when: selected(${agri_6_20} , "99")*		
Questionnaire started > Assets > _Parcel Owner > List of parcels (1) > Group 6_21			

Field	Question	Answer
agri_6_21 *(required)*	What is the surface area of the plot according to the operator? (Indicate the area in hectares or square meters to two decimal places)	
agri_6_22 *(required)*	Unit	1 Hectare (Ha) 2 Square meter (m^2)
agri_6_23 *(required)*	What is the mode of occupation of this plot?	1 1=Owner 2 2=Free loan 3 3=Rental 4 4=Sharecropping 5 5=Pledge 99 99=Other
agri_6_23_o *(required)*	Other mode of occupation of this plot *Question relevant when: ${agri_6_23} = 99*	
agri_6_24 *(required)*	What is the order number of the owner of the plot? *Question relevant when: ${agri_6_23} = 1*	1 2 ... 3 ... 4 ... 5 ... 6 ... 7 ... 8 ... 9 ... 10 ... 11 ... 12 ... 13 ... 14 ... 15 ... 16 ... 17 ... 18 ... 19 ... 20 ... 21 ... 22 ... 23 ... 24 ... 25 ... 26 ... 27 ... 28 ... 29 ... 30 ... 31 ... 32 ... 33 ... 34 ... 35 ... 36 ... 37 ... 38 ... 39 ... 40 ... 41 ... 42 ... 43 ... 44 ... 45 ... 46 ... 47 ... 48 ... 49 ...

Field	Question	Answer		
			50	...
			51	...
			52	...
			53	...
			54	...
			55	...
			56	...
			57	...
			58	...
			59	...
			60	...
agri_6_25 *(required)*	What is the method of acquisition of this plot? *Question relevant when: ${agri_6_23} = 1*		1	1=Purchase
			2	2=Legacy
			3	3=Marriage
			4	4=Donation
			99	99=Other (specify)
agri_6_25_o *(required)*	Another method of acquiring this plot *Question relevant when: ${agri_6_25} = 99*			
agri_6_26 *(required)*	Do you have a legal document (title, deed, certificate, etc.) confirming your ownership of this parcel? *Question relevant when: ${agri_6_23} = 1*		1	1=Land title
			2	2=Operating license
			3	3=Official report
			4	4=Lease
			5	5=Sales contract
			99	99=Other
			6	6=None (if "none", go to the next question)
agri_6_26_o *(required)*	Other legal document *Question relevant when: ${agri_6_26} = 99*			
agri_6_27 *(required)*	Who are the household members on this legal document? *Question relevant when: ${agri_6_23} = 1 and ${agri_6_26} != 6*		1	
			2	...
			3	...
			4	...
			5	...
			6	...
			7	...
			8	...
			9	...
			10	...
			11	...
			12	...
			13	...
			14	...
			15	...
			16	...
			17	...
			18	...
			19	...
			20	...
			21	...
			22	...
			23	...
			24	...
			25	...
			26	...
			27	...
			28	...
			29	...
			30	...
			31	...
			32	...
			33	...

Field	Question	Answer
		34 ...
		35 ...
		36 ...
		37 ...
		38 ...
		39 ...
		40 ...
		41 ...
		42 ...
		43 ...
		44 ...
		45 ...
		46 ...
		47 ...
		48 ...
		49 ...
		50 ...
		51 ...
		52 ...
		53 ...
		54 ...
		55 ...
		56 ...
		57 ...
		58 ...
		59 ...
		60 ...
agri_6_28 *(required)*	Do you think there is a risk of losing the rights associated with this plot in the next 5 years? *Question relevant when: ${agri_6_23} = 1 and ${agri_6_27} != 6*	1 Yes 0 No 2 Don't know / Don't answer
agri_6_29 *(required)*	What is the main concern? *Question relevant when: ${agri_6_23} = 1 and ${agri_6_28} = 1*	1 1=Land boundary dispute 2 2=Property: linked to inheritance 3 3=Property: linked to the sale 4 4=Property: expropriation 99 99=Other (to be specified)
agri_6_29_o *(required)*	Other type of concern *Question relevant when: ${agri_6_29} = 99*	
agri_6_30 *(required)*	Did you use animal manure on this plot during this agricultural campaign?	1 Yes 0 No 2 Don't know / Don't answer
agri_6_31 *(required)*	What was the main method of acquiring this manure? *Question relevant when: ${agri_6_30} = 1*	1 1=Direct parking 2 2=Indirect parking 3 3=Purchase 99 99=Other (to be specified)
agri_6_31_o *(required)*	Other method of acquiring the animal *Question relevant when: ${agri_6_31} = 99*	
Questionnaire started > Assets > _Parcel Owner > List of parcels (1) > Group 6_32 *Group relevant when: ${agri_6_31} = 3*		
agri_6_32 *(required)*	How much manure did you apply to the plot?	
agri_6_33 *(required)*	Unit Code	1 1=Kg 2 2=Large bag 3 3=Medium bag 4 4=Small bag 5 5=Donkey cart 6 6=Cow cart 7 7=Backpack 8 8=Trash 99 99=Other (specify)
agri_6_33_o *(required)*	Other type of quantity *Question relevant when: ${agri_6_33} = 99*	

Field	Question	Answer
agri_6_34_comp *(required)*	Did you use compost on this plot during this campaign?	1 Yes 0 No 2 Don't know / Don't answer
agri_6_34 *(required)*	Did you use household and other waste on this plot during this agricultural campaign?	1 Yes 0 No 2 Don't know / Don't answer
agri_6_35 *(required)*	How many times have you spread household waste on this plot during this agricultural campaign? *Question relevant when: ${agri_6_34} = 1*	
agri_6_36 *(required)*	Did you use inorganic/chemical fertilizers on this plot during this crop year?	1 Yes 0 No 2 Don't know / Don't answer
agri_6_37 *(required)*	How many times have you spread inorganic fertilizers on this plot during this agricultural season? *Question relevant when: ${agri_6_36} = 1*	
Questionnaire started > Assets > _Parcel Owner > List of parcels (1) > urea quantity		
agri_6_38_a	How much Urea did you use? Set zero if urea is not used	
agri_6_38_a_code	Unit	1 1=Kilogram 2 2=Ton 3 3=Bag 99 99=Other
agri_6_38_a_code_o	Other code *Question relevant when: ${agri_6_38_a_code} = 99*	
Questionnaire started > Assets > _Parcel Owner > List of parcels (1) > phosphate quantity		
agri_6_39_a	How much Phosphates did you use? Set zero if Phosphate is not used	
agri_6_39_a_code	Unit	1 1=Kilogram 2 2=Ton 3 3=Bag 99 99=Other
agri_6_39_a_code_o	Other code *Question relevant when: ${agri_6_39_a_code} = 99*	
Questionnaire started > Assets > _Parcel Owner > List of parcels (1) > npk quantity		
agri_6_40_a	How much NPK/Single Formula did you use? Set zero if NPK is not used	
agri_6_40_a_code	Unit	1 1=Kilogram 2 2=Ton 3 3=Bag 99 99=Other
agri_6_40_a_code_o	Other code *Question relevant when: ${agri_6_40_a_code} = 99*	
Questionnaire started > Assets > _Parcel Owner > List of parcels (1) > quantity of chemical fertilizers		
agri_6_41_a	How much other chemical fertilizer did you use? Put zero if the other is not used	
agri_6_41_a_code	Unit	1 1=Kilogram 2 2=Ton 3 3=Bag 99 99=Other
agri_6_41_a_code_o	Other code *Question relevant when: ${agri_6_41_a_code} = 99*	
Questionnaire started > Agricultural production		
_crops_note_1	This section concerns all members of the household, the respondent can be unique (woman or head of household). Household definition: Please include all people who usually sleep here and who eat and have meals together. Agricultural year 2022/2023 (harvest year reference to harvest year: Oct/Sep)	
Questionnaire started > Agricultural production > Cereal consumption (1)		(Repeated group)
cereals_consumption *(required)*	Did your household grow [cereals-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Cereal consumption (1) > Cereal consumption *Group relevant when: ${cereals_consumption} = 1*		
cereals_01 *(required)*	11.2 Surface area in hectares of [cereals-name]	

Field	Question	Answer
cereals_02 *(required)*	11.3 Total production in 2023 (kg) of [cereals-name]	
cereals_03 *(required)*	11.4 Quantity self-consumed in 2023 of [cereals-name]	
cereals_04 *(required)*	11.5 Quantity sold in kg in 2023 of [cereals-name]	
cereals_05 *(required)*	11.6 Current selling price in FCFA/kg of [cereals-name]	
Questionnaire started > Agricultural production > Cereal consumption (2)		(Repeated group)
cereals_consumption *(required)*	Did your household grow [cereals-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Cereal consumption (2) > Cereal consumption *Group relevant when: ${cereals_consumption} = 1*		
cereals_01 *(required)*	11.2 Surface area in hectares of [cereals-name]	
cereals_02 *(required)*	11.3 Total production in 2023 (kg) of [cereals-name]	
cereals_03 *(required)*	11.4 Quantity self-consumed in 2023 of [cereals-name]	
cereals_04 *(required)*	11.5 Quantity sold in kg in 2023 of [cereals-name]	
cereals_05 *(required)*	11.6 Current selling price in FCFA/kg of [cereals-name]	
Questionnaire started > Agricultural production > Cereal consumption (3)		(Repeated group)
cereals_consumption *(required)*	Did your household grow [cereals-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Cereal consumption (3) > Cereal consumption *Group relevant when: ${cereals_consumption} = 1*		
cereals_01 *(required)*	11.2 Surface area in hectares of [cereals-name]	
cereals_02 *(required)*	11.3 Total production in 2023 (kg) of [cereals-name]	
cereals_03 *(required)*	11.4 Quantity self-consumed in 2023 of [cereals-name]	
cereals_04 *(required)*	11.5 Quantity sold in kg in 2023 of [cereals-name]	
cereals_05 *(required)*	11.6 Current selling price in FCFA/kg of [cereals-name]	
Questionnaire started > Agricultural production > Cereal consumption (4)		(Repeated group)
cereals_consumption *(required)*	Did your household grow [cereals-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Cereal consumption (4) > Cereal consumption *Group relevant when: ${cereals_consumption} = 1*		
cereals_01 *(required)*	11.2 Surface area in hectares of [cereals-name]	
cereals_02 *(required)*	11.3 Total production in 2023 (kg) of [cereals-name]	
cereals_03 *(required)*	11.4 Quantity self-consumed in 2023 of [cereals-name]	
cereals_04 *(required)*	11.5 Quantity sold in kg in 2023 of [cereals-name]	
cereals_05 *(required)*	11.6 Current selling price in FCFA/kg of [cereals-name]	
Questionnaire started > Agricultural production > Cereal consumption (5)		(Repeated group)
cereals_consumption *(required)*	Did your household grow [cereals-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Cereal consumption (5) > Cereal consumption *Group relevant when: ${cereals_consumption} = 1*		
cereals_01 *(required)*	11.2 Surface area in hectares of [cereals-name]	
cereals_02 *(required)*	11.3 Total production in 2023 (kg) of [cereals-name]	
cereals_03 *(required)*	11.4 Quantity self-consumed in 2023 of [cereals-name]	
cereals_04 *(required)*	11.5 Quantity sold in kg in 2023 of [cereals-name]	
cereals_05 *(required)*	11.6 Current selling price in FCFA/kg of [cereals-name]	
Questionnaire started > Agricultural production > Cereal consumption (6)		(Repeated group)
cereals_consumption *(required)*	Did your household grow [cereals-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Cereal consumption (6) > Cereal consumption *Group relevant when: ${cereals_consumption} = 1*		
cereals_01 *(required)*	11.2 Surface area in hectares of [cereals-name]	
cereals_02 *(required)*	11.3 Total production in 2023 (kg) of [cereals-name]	
cereals_03 *(required)*	11.4 Quantity self-consumed in 2023 of [cereals-name]	
cereals_04 *(required)*	11.5 Quantity sold in kg in 2023 of [cereals-name]	
cereals_05 *(required)*	11.6 Current selling price in FCFA/kg of [cereals-name]	
Questionnaire started > Agricultural production > Consumption of flour and tubers (1)		(Repeated group)
flour_tubers_consumption *(required)*	Did your household grow [flour_tubers-name] during this period?	1 Yes

Field	Question	Answer
		0 No
		2 Don't know / Don't answer
Questionnaire started > Agricultural production > Consumption of flour and tubers (1) > Consumption of Flour and Tubers *Group relevant when: ${farine_tubercules_consumption} = 1*		
flours_01 *(required)*	11.2 Area in hectares of [farine_tubercules-name]	
flours_02 *(required)*	11.3 Total production in 2023 (kg) of [farine_tubercules-name]	
flours_03 *(required)*	11.4 Quantity self-consumed in 2023 of [farine_tubercules-name]	
flours_04 *(required)*	11.5 Quantity sold in kg in 2023 of [farine_tubercules-name]	
flours_05 *(required)*	11.6 Current selling price in FCFA/kg of [farine_tubercules-name]	
Questionnaire started > Agricultural production > Consumption of flour and tubers (2)		(Repeated group)
flour_tubers_consumption *(required)*	Did your household grow [flour_tubers-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Consumption of flour and tubers (2) > Consumption of Flour and Tubers *Group relevant when: ${farine_tubercules_consumption} = 1*		
flours_01 *(required)*	11.2 Area in hectares of [farine_tubercules-name]	
flours_02 *(required)*	11.3 Total production in 2023 (kg) of [farine_tubercules-name]	
flours_03 *(required)*	11.4 Quantity self-consumed in 2023 of [farine_tubercules-name]	
flours_04 *(required)*	11.5 Quantity sold in kg in 2023 of [farine_tubercules-name]	
flours_05 *(required)*	11.6 Current selling price in FCFA/kg of [farine_tubercules-name]	
Questionnaire started > Agricultural production > Consumption of flour and tubers (3)		(Repeated group)
flour_tubers_consumption *(required)*	Did your household grow [flour_tubers-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Consumption of flour and tubers (3) > Consumption of Flour and Tubers *Group relevant when: ${farine_tubercules_consumption} = 1*		
flours_01 *(required)*	11.2 Area in hectares of [farine_tubercules-name]	
flours_02 *(required)*	11.3 Total production in 2023 (kg) of [farine_tubercules-name]	
flours_03 *(required)*	11.4 Quantity self-consumed in 2023 of [farine_tubercules-name]	
flours_04 *(required)*	11.5 Quantity sold in kg in 2023 of [farine_tubercules-name]	
flours_05 *(required)*	11.6 Current selling price in FCFA/kg of [farine_tubercules-name]	
Questionnaire started > Agricultural production > Consumption of flour and tubers (4)		(Repeated group)
flour_tubers_consumption *(required)*	Did your household grow [flour_tubers-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Consumption of flour and tubers (4) > Consumption of Flour and Tubers *Group relevant when: ${farine_tubercules_consumption} = 1*		
flours_01 *(required)*	11.2 Area in hectares of [farine_tubercules-name]	
flours_02 *(required)*	11.3 Total production in 2023 (kg) of [farine_tubercules-name]	
flours_03 *(required)*	11.4 Quantity self-consumed in 2023 of [farine_tubercules-name]	
flours_04 *(required)*	11.5 Quantity sold in kg in 2023 of [farine_tubercules-name]	
flours_05 *(required)*	11.6 Current selling price in FCFA/kg of [farine_tubercules-name]	
Questionnaire started > Agricultural production > Consumption of flour and tubers (5)		(Repeated group)
flour_tubers_consumption *(required)*	Did your household grow [flour_tubers-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Consumption of flour and tubers (5) > Consumption of Flour and Tubers *Group relevant when: ${farine_tubercules_consumption} = 1*		
flours_01 *(required)*	11.2 Area in hectares of [farine_tubercules-name]	
flours_02 *(required)*	11.3 Total production in 2023 (kg) of [farine_tubercules-name]	
flours_03 *(required)*	11.4 Quantity self-consumed in 2023 of [farine_tubercules-name]	
flours_04 *(required)*	11.5 Quantity sold in kg in 2023 of [farine_tubercules-name]	
flours_05 *(required)*	11.6 Current selling price in FCFA/kg of [farine_tubercules-name]	
Questionnaire started > Agricultural production > Consumption of flour and tubers (6)		(Repeated group)
flour_tubers_consumption *(required)*	Did your household grow [flour_tubers-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Consumption of flour and tubers (6) > Consumption of Flour and Tubers *Group relevant when: ${farine_tubercules_consumption} = 1*		
flours_01 *(required)*	11.2 Area in hectares of [farine_tubercules-name]	
flours_02 *(required)*	11.3 Total production in 2023 (kg) of [farine_tubercules-name]	

Field	Question	Answer
flours_03 *(required)*	11.4 Quantity self-consumed in 2023 of [farine_tubercules-name]	
flours_04 *(required)*	11.5 Quantity sold in kg in 2023 of [farine_tubercules-name]	
flours_05 *(required)*	11.6 Current selling price in FCFA/kg of [farine_tubercules-name]	
Questionnaire started > Agricultural production > Vegetable consumption (1)		(Repeated group)
vegetables_consumption *(required)*	Did your household grow [vegetables-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Vegetable consumption (1) > Vegetable consumption *Group relevant when: ${vegetables_consumption} = 1*		
vegetables_01 *(required)*	11.2 Area in hectares of [vegetables-name]	
vegetables_02 *(required)*	11.3 Total production in 2023 (kg) of [vegetables-name]	
vegetables_03 *(required)*	11.4 Quantity self-consumed in 2023 of [vegetables-name]	
vegetables_04 *(required)*	11.5 Quantity sold in kg in 2023 of [vegetables-name]	
vegetables_05 *(required)*	11.6 Current selling price in FCFA/kg of [vegetables-name]	
Questionnaire started > Agricultural production > Vegetable consumption (2)		(Repeated group)
vegetables_consumption *(required)*	Did your household grow [vegetables-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Vegetable consumption (2) > Vegetable consumption *Group relevant when: ${vegetables_consumption} = 1*		
vegetables_01 *(required)*	11.2 Area in hectares of [vegetables-name]	
vegetables_02 *(required)*	11.3 Total production in 2023 (kg) of [vegetables-name]	
vegetables_03 *(required)*	11.4 Quantity self-consumed in 2023 of [vegetables-name]	
vegetables_04 *(required)*	11.5 Quantity sold in kg in 2023 of [vegetables-name]	
vegetables_05 *(required)*	11.6 Current selling price in FCFA/kg of [vegetables-name]	
Questionnaire started > Agricultural production > Vegetable consumption (3)		(Repeated group)
vegetables_consumption *(required)*	Did your household grow [vegetables-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Vegetable consumption (3) > Vegetable consumption *Group relevant when: ${vegetables_consumption} = 1*		
vegetables_01 *(required)*	11.2 Area in hectares of [vegetables-name]	
vegetables_02 *(required)*	11.3 Total production in 2023 (kg) of [vegetables-name]	
vegetables_03 *(required)*	11.4 Quantity self-consumed in 2023 of [vegetables-name]	
vegetables_04 *(required)*	11.5 Quantity sold in kg in 2023 of [vegetables-name]	
vegetables_05 *(required)*	11.6 Current selling price in FCFA/kg of [vegetables-name]	
Questionnaire started > Agricultural production > Vegetable consumption (4)		(Repeated group)
vegetables_consumption *(required)*	Did your household grow [vegetables-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Vegetable consumption (4) > Vegetable consumption *Group relevant when: ${vegetables_consumption} = 1*		
vegetables_01 *(required)*	11.2 Area in hectares of [vegetables-name]	
vegetables_02 *(required)*	11.3 Total production in 2023 (kg) of [vegetables-name]	
vegetables_03 *(required)*	11.4 Quantity self-consumed in 2023 of [vegetables-name]	
vegetables_04 *(required)*	11.5 Quantity sold in kg in 2023 of [vegetables-name]	
vegetables_05 *(required)*	11.6 Current selling price in FCFA/kg of [vegetables-name]	
Questionnaire started > Agricultural production > Vegetable consumption (5)		(Repeated group)
vegetables_consumption *(required)*	Did your household grow [vegetables-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Vegetable consumption (5) > Vegetable consumption *Group relevant when: ${vegetables_consumption} = 1*		
vegetables_01 *(required)*	11.2 Area in hectares of [vegetables-name]	
vegetables_02 *(required)*	11.3 Total production in 2023 (kg) of [vegetables-name]	
vegetables_03 *(required)*	11.4 Quantity self-consumed in 2023 of [vegetables-name]	
vegetables_04 *(required)*	11.5 Quantity sold in kg in 2023 of [vegetables-name]	
vegetables_05 *(required)*	11.6 Current selling price in FCFA/kg of [vegetables-name]	
Questionnaire started > Agricultural production > Vegetable consumption (6)		(Repeated group)
vegetables_consumption *(required)*	Did your household grow [vegetables-name] during this period?	1 Yes 0 No

Field	Question	Answer
		2 Don't know / Don't answer
Questionnaire started > Agricultural production > Vegetable consumption (6) > Vegetable consumption *Group relevant when: ${vegetables_consumption} = 1*		
vegetables_01 *(required)*	11.2 Area in hectares of [vegetables-name]	
vegetables_02 *(required)*	11.3 Total production in 2023 (kg) of [vegetables-name]	
vegetables_03 *(required)*	11.4 Quantity self-consumed in 2023 of [vegetables-name]	
vegetables_04 *(required)*	11.5 Quantity sold in kg in 2023 of [vegetables-name]	
vegetables_05 *(required)*	11.6 Current selling price in FCFA/kg of [vegetables-name]	
Questionnaire started > Agricultural production > Consumption of legumes (1)		(Repeated group)
legumes_consumption *(required)*	Did your household grow [legumes-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Consumption of legumes (1) > Consumption of legumes *Group relevant when: ${leguminous_consumption} = 1*		
legumes_01 *(required)*	11.2 Area in hectares of [legumes-name]	
legumes_02 *(required)*	11.3 Total production in 2023 (kg) of [legumes-name]	
legumes_03 *(required)*	11.4 Quantity self-consumed in 2023 of [legumes-name]	
legumes_04 *(required)*	11.5 Quantity sold in kg in 2023 of [legumes-name]	
legumes_05 *(required)*	11.6 Current selling price in FCFA/kg of [legumes-name]	
Questionnaire started > Agricultural production > Consumption of legumes (2)		(Repeated group)
legumes_consumption *(required)*	Did your household grow [legumes-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Consumption of legumes (2) > Consumption of legumes *Group relevant when: ${leguminous_consumption} = 1*		
legumes_01 *(required)*	11.2 Area in hectares of [legumes-name]	
legumes_02 *(required)*	11.3 Total production in 2023 (kg) of [legumes-name]	
legumes_03 *(required)*	11.4 Quantity self-consumed in 2023 of [legumes-name]	
legumes_04 *(required)*	11.5 Quantity sold in kg in 2023 of [legumes-name]	
legumes_05 *(required)*	11.6 Current selling price in FCFA/kg of [legumes-name]	
Questionnaire started > Agricultural production > Consumption of legumes (3)		(Repeated group)
legumes_consumption *(required)*	Did your household grow [legumes-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Consumption of legumes (3) > Consumption of legumes *Group relevant when: ${leguminous_consumption} = 1*		
legumes_01 *(required)*	11.2 Area in hectares of [legumes-name]	
legumes_02 *(required)*	11.3 Total production in 2023 (kg) of [legumes-name]	
legumes_03 *(required)*	11.4 Quantity self-consumed in 2023 of [legumes-name]	
legumes_04 *(required)*	11.5 Quantity sold in kg in 2023 of [legumes-name]	
legumes_05 *(required)*	11.6 Current selling price in FCFA/kg of [legumes-name]	
Questionnaire started > Agricultural production > Consumption of legumes (4)		(Repeated group)
legumes_consumption *(required)*	Did your household grow [legumes-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Consumption of legumes (4) > Consumption of legumes *Group relevant when: ${leguminous_consumption} = 1*		
legumes_01 *(required)*	11.2 Area in hectares of [legumes-name]	
legumes_02 *(required)*	11.3 Total production in 2023 (kg) of [legumes-name]	
legumes_03 *(required)*	11.4 Quantity self-consumed in 2023 of [legumes-name]	
legumes_04 *(required)*	11.5 Quantity sold in kg in 2023 of [legumes-name]	
legumes_05 *(required)*	11.6 Current selling price in FCFA/kg of [legumes-name]	
Questionnaire started > Agricultural production > Consumption of legumes (5)		(Repeated group)
legumes_consumption *(required)*	Did your household grow [legumes-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Consumption of legumes (5) > Consumption of legumes *Group relevant when: ${leguminous_consumption} = 1*		
legumes_01 *(required)*	11.2 Area in hectares of [legumes-name]	
legumes_02 *(required)*	11.3 Total production in 2023 (kg) of [legumes-name]	
legumes_03 *(required)*	11.4 Quantity self-consumed in 2023 of [legumes-name]	

Field	Question	Answer
legumes_04 *(required)*	11.5 Quantity sold in kg in 2023 of [legumes-name]	
legumes_05 *(required)*	11.6 Current selling price in FCFA/kg of [legumes-name]	
Questionnaire started > Agricultural production > Consumption of aquatic products (1)		(Repeated group)
aquatic_consumption *(required)*	Did your household grow [aquatic-name] during this period?	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > Agricultural production > Consumption of aquatic (1) > Consumption of aquatic *Group relevant when: ${aquatique_consumption} = 1*		
aquatic_01 *(required)*	11.2 Surface area in hectares of [aquatique-name]	
aquatic_02 *(required)*	11.3 Total production in 2023 (kg) of [aquatique-name]	
aquatic_03 *(required)*	11.4 Self-consumed quantity in 2023 of [aquatique-name]	
aquatic_04 *(required)*	11.5 Quantity sold in kg in 2023 of [aquatique-name]	
aquatic_05 *(required)*	11.6 Current selling price in FCFA/kg of [aquatique-name]	
other_culture_yesno	Is there another type of culture?	1 Yes 0 No 2 Don't know / Don't answer
other_culture	Other type of culture *Question relevant when: ${autre_culture_yesno} = 1*	
Questionnaire started > Agricultural production > Other type of crop *Group relevant when: ${autre_culture_yesno} = 1*		
o_culture_01 *(required)*	11.2 Area in hectares of [other_crop]	
o_culture_02 *(required)*	11.3 Total production in 2023 (kg) of [other_crop]	
o_culture_03 *(required)*	11.4 Quantity self-consumed in 2023 of [other_crop]	
o_culture_04 *(required)*	11.5 Quantity sold in kg in 2023 of [other_crop]	
o_culture_05 *(required)*	11.6 Current selling price in FCFA/kg of [other_crop]	
Questionnaire started > _food_consumption		
_food_note	TYPE AND METHOD OF CONSUMPTION (of the three daily meals)	
food01 *(required)*	7.1 In the last twelve (12) months, how many months did the lean period last? *Response constrained to: .>= 0 and .<= 12 or .= -9*	
food02 *(required)*	7.2 Did you (or a member of your family) do paid work during this period to cope with the lean season? *Question relevant when: ${food01} > 0*	1 Yes 0 No 2 Don't know / Don't answer
food03 *(required)*	7.3 Have you sold any assets to support yourself during this period? *Question relevant when: ${food01} > 0*	1 Yes 0 No 2 Don't know / Don't answer
Questionnaire started > _food_consumption > Group 04 *Group relevant when: ${food03} = 1*		
food04	7.4 Which ones?	
food05 *(required)*	a) Livestock	1 Yes 0 No 2 Don't know / Don't answer
food06 *(required)*	b) Carts	1 Yes 0 No 2 Don't know / Don't answer
food07 *(required)*	c) Production tools	1 Yes 0 No 2 Don't know / Don't answer
food08 *(required)*	d) Material goods	1 Yes 0 No 2 Don't know / Don't answer
food09 *(required)*	e) Draw on other resources (e.g., a store)	1 Yes 0 No 2 Don't know / Don't answer
food10	f) Others, please specify	
food11 *(required)*	7.5 Did any members of the household migrate during this period due to the lean season? *Question relevant when: ${food01} > 0*	1 Yes 0 No 2 Don't know / Don't answer
food12 *(required)*	7.6 Have you skipped meals during the day due to the lean season? *Question relevant when: ${food01} > 0*	1 Yes 0 No 2 Don't know / Don't answer

Field	Question	Answer		
Questionnaire started > HHincome				
note_income	The questions in this section relate to the last 12 months.			
Questionnaire started > HHincome > Census of income from agricultural services				
agri_income_note	Census of income from paid work during the last 12 months for the entire household			
agri_income_01 *(required)*	8.1 Have you (or any member of your household) done paid work in the last 12 months?		1	Yes
			0	No
			2	Don't know / Don't answer
agri_income_02 *(required)*	8.2 What type of work was (were) it? *Question relevant when: ${agri_income_01} = 1*		1	[1] Agricultural worker
			2	[2] Technician
			3	[3] Other, to be specified
agri_income_02_o *(required)*	Other type of work *Question relevant when: ${agri_income_02} = 3*			
Questionnaire started > HHincome > Census of income from agricultural services > Income group *Group relevant when: ${agri_income_01} = 1*				
agri_income_03 *(required)*	8.3 What is the duration of this work (frequency) in the last 12 months?			
agri_income_04 *(required)*	8.4. Unit of time		1	[1] Number of days
			2	[2] Number of weeks
			3	[3] Number of months
agri_income_05 *(required)*	8.5 Amount received in kind and/or cash (FCFA) for this work. *Question relevant when: ${agri_income_01} = 1*			
agri_income_06 *(required)*	8.6 What was the total amount (in FCFA) of expenses incurred for this work (transport, food, etc.)? *Question relevant when: ${agri_income_01} = 1*			
Questionnaire started > HHincome > _livestock_production				
_livestock_production_note	Livestock production and income			
species *(required)*	What species do the owners have? Census of household animal resources.		1	Cattle
			2	Sheep
			3	Goat
			4	Horse (equine)
			5	Donkey
			6	Draft animals
			7	Pigs
			8	Poultry
species_other	Are there other species owned by the household?		1	Yes
			0	No
			2	Don't know / Don't answer
species_o *(required)*	Other species *Question relevant when: ${species_autre} = 1*			
Questionnaire started > HHincome > _livestock_production > Species roster (1)		(Repeated group)		
agri_income_07 *(required)*	8.8 Number of heads of [species-name] currently			
agri_income_08 *(required)*	8.9 Number of heads of [species-name] sold (this year)			
agri_income_09 *(required)*	8.10 Main reasons for selling [species-name] *Question relevant when: ${agri_income_08} > 0*		1	1= input needs
			2	2= agricultural equipment needs
			3	3= immediate spending needs
			4	4= family ceremony
			5	5= death of an animal;
			6	6= sickness expenses
			7	7= others, to be specified
agri_income_09_o *(required)*	Another reason to sell *Question relevant when: ${agri_income_09} = 7*			
agri_income_10 *(required)*	8.11 Average price per head of [species-name] in FCFA *Question relevant when: ${agri_income_08} > 0*			
agri_income_07_o *(required)*	8.8 Number of heads of [species_o] currently *Question relevant when: ${species_autre} = 1*			
agri_income_08_o *(required)*	8.9 Number of heads of [species_o] sold (this year) *Question relevant when: ${species_autre} = 1*			
agri_income_09_o_o *(required)*	8.10 Main reasons for selling [species_o] *Question relevant when: ${agri_income_08_o} > 0*		1	1= input needs
			2	2= agricultural equipment needs
			3	3= immediate spending needs
			4	4= family ceremony
			5	5= death of an animal;
			6	6= sickness expenses

Field	Question	Answer		
			7	7= others, to be specified
agri_income_09_o_o_o *(required)*	Another reason to sell *Question relevant when: ${agri_income_09_o_o} = 7*			
agri_income_10_o *(required)*	8.11 Average price per head of [species_o] in FCFA *Question relevant when: ${agri_income_08_o} > 0*			
Questionnaire started > HHincome > Animal sales				
animals_sales *(required)*	8.12. Livestock income Sale of animals		1	Cattle
			2	Sheep
			3	Goat
			4	Horse (equine)
			5	Donkey
			6	Draft animals
			7	Pigs
			8	Poultry
animals_sales_o	Are there other animals sold by the household?		1	Yes
			0	No
			2	Don't know / Don't answer
animals_sales_t	Other animal sold by the household? *Question relevant when: ${animals_sales_o} = 1*			
Questionnaire started > HHincome > Animal sales > Animal sales roster (1)		(Repeated group)		
Questionnaire started > HHincome > Animal sales > Animal sales roster (1) > Agriincome Group				
agri_income_11 *(required)*	8.13 Number of heads of [sale_animales-name] sold			
agri_income_12 *(required)*	8.14 Total amount in FCFA for the sale of [sale_animales-name]			
Questionnaire started > HHincome > Animal sales > Animals sales roster (1) > Group sales of products from animals				
agri_income_13 *(required)*	8.15 Nature of products from [sale_animales-name] sold		1	1. milk
			2	2. butter
			3	3.manure
			99	4. others
agri_income_14 *(required)*	8.16 Amount in FCFA of the total sales for products from [sale_animales-name]			
agri_income_13_other *(required)*	Other nature *Question relevant when: ${agri_income_13} = 4*			
agri_income_11_o *(required)*	8.13 Number of heads of [animals_sales_t] sold *Question relevant when: ${animals_sales_o} = 1*			
agri_income_12_o *(required)*	8.14_other Total amount in FCFA for the sale of [animals_sales_t] *Question relevant when: ${animals_sales_o} = 1*			
Questionnaire started > HHincome > Animal sales > Animal product sales group *Group relevant when: ${animals_sales_o} = 1*				
agri_income_13_o *(required)*	8.15 Nature of products from [animals_sales_t] sold		1	1. milk
			2	2. butter
			3	3.manure
			99	4. others
agri_income_14_o *(required)*	8.16 Amount in FCFA of the total sales for products from [animals_sales_t]			
agri_income_13_o_t *(required)*	Other nature *Question relevant when: ${agri_income_13_o} = 4*			
Questionnaire started > HHincome > Agricultural expense				
agri_income_15 *(required)*	8.17 Do you have employees for your agricultural activities?		1	Yes
			0	No
			2	Don't know / Don't answer
agri_income_16 *(required)*	8.19 If yes, please specify the number. *Question relevant when: ${agri_income_15} = 1*			
agri_income_17 *(required)*	8.20 Are these employees paid? *Question relevant when: 0*		1	Yes
			0	No
			2	Don't know / Don't answer
agri_income_18 *(required)*	8.21 How are they paid? *Question relevant when: ${agri_income_15} = 1*		1	1. In kind
			2	2. In money
			3	3. Other (to be specified)
agri_income_18_o *(required)*	Other type of payment *Question relevant when: ${agri_income_18} = 3*			
agri_income_19 *(required)*	8.22 What is the total amount of remuneration in the last 12 months for all workers (cash plus in kind)? *Question relevant when: ${agri_income_15} = 1*			
Questionnaire started > HHincome > Non-agricultural income				

Field	Question	Answer
agri_income_20 *(required)*	8.23 Type of non-agricultural activity	1 1= Fishing 2 2= Forestry 3 3= Craft 4 4= Commerce 5 5= Services 6 6= Salaried employment 7 7= Transportation 8 8= Harvest
agri_income_20_t	Are there other non-agricultural activities?	1 Yes 0 No 2 Don't know / Don't answer
agri_income_20_o *(required)*	8.23_o Other type of non-agricultural activities *Question relevant when: ${agri_income_20_t} = 1*	
Questionnaire started > HHincome > Non-agricultural income > Roster non-agricultural expenditure (1)		(Repeated group)
agri_income_21_h *(required)*	8.24 Number of people involved in [agri_income_20-name] (Male)	
agri_income_21_f	8.24 Number of people involved in [agri_income_20-name] (Female)	
agri_income_22 *(required)*	8.25 Frequency of [agri_income_20-name] per year (number of months) *Response constrained to: .<= 12*	
agri_income_23 *(required)*	8.26 Income by frequency (per [agri_income_22] months)	
agri_income_24 *(required)*	8.27 Total annual income *Question relevant when: 0*	
agri_income_21_h_o *(required)*	8.24 Number of people involved in [agri_income_20_o] (Male) *Question relevant when: ${agri_income_20_t} = 1*	
agri_income_21_f_o	8.24 Number of people involved in [agri_income_20_o] (Female) *Question relevant when: ${agri_income_20_t} = 1*	
agri_income_22_o *(required)*	8.25 Frequency of [agri_income_20_o] per year (number of months) *Question relevant when: ${agri_income_20_t} = 1* *Response constrained to: .<= 12*	
agri_income_23_o *(required)*	8.26 Income by frequency (per [agri_income_22_o] month) *Question relevant when: ${agri_income_20_t} = 1*	
Questionnaire started > HHincome > Expenditures for non-agricultural activities		
agri_income_25 *(required)*	8.28 Do you have employees for your non-agricultural activities?	1 Yes 0 No 2 Don't know / Don't answer
agri_income_26 *(required)*	8.29 If yes, please specify the number. *Question relevant when: ${agri_income_25} = 1*	
agri_income_27 *(required)*	8.30 Are these employees paid? *Question relevant when: 0*	1 Yes 0 No 2 Don't know / Don't answer
agri_income_28 *(required)*	8.31 How are they paid? *Question relevant when: ${agri_income_25} = 1*	1 1. In kind 2 2. In money 3 3. Other (to be specified)
agri_income_28_o *(required)*	8.31_o Other payment method *Question relevant when: selected(${agri_income_28} , "3")*	
agri_income_29 *(required)*	8.32 What is the total amount of remuneration in the last 12 months for all workers (cash plus in kind)? *Question relevant when: ${agri_income_25} = 1*	
Questionnaire started > HHincome > Migration and transfer income		
agri_income_30_note	Migration income for the household	
agri_income_30 *(required)*	8.33 Do any members of your household migrate within or outside the country?	1 Yes 0 No 2 Don't know / Don't answer
agri_income_31 *(required)*	8.34 If yes, where are they? (Multiple choice possible if there are several people in another area) *Question relevant when: ${agri_income_30} = 1*	1 1. Another region of Senegal 2 2. Other African countries 3 3. Europe 4 4. America 5 5. Asia 6 6. Other regions (to be specified)
agri_income_31_o *(required)*	8.34_o Other migration zone *Question relevant when: selected(${agri_income_31} , "6")*	
agri_income_32 *(required)*	8.35 If yes, do they send money for household needs? *Question relevant when: ${agri_income_30} = 1*	1 Yes 0 No

Field	Question	Answer		
			2	Don't know / Don't answer
agri_income_33 *(required)*	8.36. If yes, how much have you received in total over the last 12 months? *Question relevant when: ${agri_income_30} = 1 and ${agri_income_32} = 1*			
Questionnaire started > HHincome > Credit transfer income				
agri_income_34 *(required)*	8.37 Have you (or a member of your household) taken out a loan in the last twelve (12) months?		1	Yes
			0	No
			2	Don't know / Don't answer
agri_income_35 *(required)*	8.38 If not, why didn't you do it? *Question relevant when: ${agri_income_34} = 0*		1	1= I didn't need it
			2	2= I tried but my request was rejected
			3	3= I had no one to ask
			4	4= I knew it was impossible, so I didn't even try
			5	5= I had no guarantee
			6	6= I was afraid of losing my warranty
			7	7= I was afraid of not being able to repay
			8	8= Interest rates were too high
			9	9= It contradicted my religious beliefs
			99	10=Other (please specify))
agri_income_name	Choose the members of your household who took out a loan. *Question relevant when: ${agri_income_34} = 1*		1	
			2	...
			3	...
			4	...
			5	...
			6	...
			7	...
			8	...
			9	...
			10	...
			11	...
			12	...
			13	...
			14	...
			15	...
			16	...
			17	...
			18	...
			19	...
			20	...
			21	...
			22	...
			23	...
			24	...
			25	...
			26	...
			27	...
			28	...
			29	...
			30	...
			31	...
			32	...
			33	...
			34	...
			35	...
			36	...
			37	...
			38	...
			39	...

Field	Question	Answer
		40 ...
		41 ...
		42 ...
		43 ...
		44 ...
		45 ...
		46 ...
		47 ...
		48 ...
		49 ...
		50 ...
		51 ...
		52 ...
		53 ...
		54 ...
		55 ...
		56 ...
		57 ...
		58 ...
		59 ...
		60 ...
Questionnaire started > HHincome > Credit transfer income > Credit roster (1)		(Repeated group)
agri_income_36 *(required)*	8.39 How much of this loan did [credit_ask-name] take out? *Question relevant when: ${agri_income_34} = 1*	
agri_income_37 *(required)*	8.40 From whom did [credit_ask-name] take out this loan? *Question relevant when: ${agri_income_34} = 1*	
agri_income_38 *(required)*	8.41 How much of this loan has [credit_ask-name] already repaid? *Question relevant when: ${agri_income_34} = 1* *Response constrained to: .<= ${agri_income_36}*	
agri_income_39 *(required)*	8.42 How much of this loan does [credit_ask-name] still owe? *Question relevant when: ${agri_income_34} = 1*	
remaining_pret_error *(required)*	Could you explain why the remaining balance is [agri_income_39] instead of the calculated amount of [remaining_pret]? *Question relevant when: ${agri_income_39} > ${remaining_pret}*	
agri_income_40 *(required)*	8.43 Have you (or any member of your household) lent money to other people in the last twelve (12) months?	1 Yes 0 No 2 Don't know / Don't answer
agri_loan_name	Choose members of your household who have lent money to other people. *Question relevant when: ${agri_income_40} = 1*	1 2 ... 3 ... 4 ... 5 ... 6 ... 7 ... 8 ... 9 ... 10 ... 11 ... 12 ... 13 ... 14 ... 15 ... 16 ... 17 ... 18 ... 19 ... 20 ... 21 ... 22 ... 23 ... 24 ...

Field	Question	Answer
		25 ...
		26 ...
		27 ...
		28 ...
		29 ...
		30 ...
		31 ...
		32 ...
		33 ...
		34 ...
		35 ...
		36 ...
		37 ...
		38 ...
		39 ...
		40 ...
		41 ...
		42 ...
		43 ...
		44 ...
		45 ...
		46 ...
		47 ...
		48 ...
		49 ...
		50 ...
		51 ...
		52 ...
		53 ...
		54 ...
		55 ...
		56 ...
		57 ...
		58 ...
		59 ...
		60 ...
Questionnaire started > HHincome > Credit transfer income > loan roster (1)		(Repeated group)
agri_income_41 *(required)*	8.44 How much has [loan-name] lent to other people? *Question relevant when: ${agri_income_40} = 1*	
agri_income_42 *(required)*	8.45 How much has [loan-name] loaned to other people already paid? *Question relevant when: ${agri_income_40} = 1*	
agri_income_43 *(required)*	8.48 How much money [loan-name] lent to other people is still owed? *Question relevant when: ${agri_income_40} = 1*	
agri_income_44 *(required)*	8.47 What is the net value of transfers made over the last 12 months? *Question relevant when: 0*	
Questionnaire started > HHincome > Overall household expenses		
product_miscellaneous *(required)*	What are the overall household expenses over the past four months, the financing sources or practices you are developing to meet these needs, and who are responsible for these financing needs within the household?	1 1. Food (food products) 2 2. Health 3 3. education 4 4. Water/Electricity for the household 5 5. Accommodation/transportation 6 6. Expenses for household appliances and furniture 7 7. Other non-agricultural investments 8 8. Construction, repair and modification expenses 9 9. Acquisition of means of transport

Field	Question	Answer		
			10	10. Expenses for household clothing and shoes
			11	11. Expenses for repairs and purchases of various household items
			12	12. Expenditure on household ceremonies/purchase of jewelry and precious stones
			13	13. Other expenses (gifts, donations, aid, tobacco, alcohol, taxes, fines, insurance)
			14	14. Telephone/Wifi charges
			99	99. Other expenses
Questionnaire started > HHincome > Overall household expenses > Production roster (1)		(Repeated group)		
Questionnaire started > HHincome > Overall household expenditure > Production roster (1) > agri_income_45_group				
agri_income_45 *(required)*	8.49 amount in [product-name]			
agri_income_46 *(required)*	8.50 sources of financing (multiple choice)		1	1.credit
			2	2. own income
			3	3. donations
			4	4.others (to be specified)
agri_income_46_o *(required)*	8.50_o Other source of financing *Question relevant when: selected(${agri_income_46} , "99")*			
Questionnaire started > HHincome > Agricultural Expenses - Goods				
expenses_goods *(required)*	8.51 Types of expenses		1	1. Fertilizer
			2	2. Livestock feed
expenses_goods_t	Are there any other types of expenses?		1	Yes
			0	No
			2	Don't know / Don't answer
expenses_goods_o	Other specify *Question relevant when: ${expenses_goods_t} = 1*			
Questionnaire started > HHincome > Agricultural Expenses - Goods > Agriculture goods roster (1)		(Repeated group)		
Questionnaire started > HHincome > Agricultural Expenses - Goods > Agriculture goods roster (1) > Groupe agri_income_47				
agri_income_47 *(required)*	Amount (KG) of [goods-name]			
agri_income_48 *(required)*	Quantity (FCFA)			
Questionnaire started > HHincome > Agricultural Expenses - Goods > Other type of expense *Group relevant when: ${expenses_goods_t} = 1*				
agri_income_47_o *(required)*	Amount (KG) of [expenses_goods_o]			
agri_income_48_o *(required)*	Quantity (FCFA)			
Questionnaire started > Standard of living				
living_01 *(required)*	9.1 What is the main source of drinking water supply?		1	1 = Interior tap
			2	2 = Public tap
			3	3 = Neighbor's tap
			4	4 = Protected well
			5	5 = Unprotected well
			6	6 = Drill hole
			7	7 = Tanker service
			8	8 = Water seller
			9	9 = Source
			10	10 = Stream
			99	99 = Other
living_01_o *(required)*	9.1_o Other source of water supply *Question relevant when: ${living_01} = 99*			
living_02 *(required)*	9.2 Is the water used treated in the household?		1	Yes
			0	No
			2	Don't know / Don't answer
living_03 *(required)*	9.3 If yes, how is the water treated? *Question relevant when: ${living_02} = 1*		1	1 = Bleach/Aqua tabs
			2	2 = Boil
			3	3 = Filtration
			99	99 = Other (to be specified)
living_03_o *(required)*	9.3_o Other type of water treatment *Question relevant when: ${living_03} = 99*			

Field	Question	Answer		
living_04 *(required)*	9.4 What is the main type of toilet used by your household?		1	0 None/outside
			2	1 Flush with sewer
			3	2 Toilet flush with septic tank
			4	3 Bucket
			5	4 Covered pit latrines
			6	5 Uncovered pit latrines
			7	6 Improved latrines
			99	99 Others
living_04_o *(required)*	9.4_o Other type of toilet *Question relevant when: ${living_04} = 99*			
living_05 *(required)*	9.5 What is the main fuel used for cooking?		1	1 Charcoal
			2	2 Firewood
			3	3 Gas
			4	4 Electricity
			5	5 Gasoline/oil/ethanol
			6	6 Animal waste/manure
			7	7 Solar energy
			99	99 Others
living_05_o *(required)*	9.5_o Other type of fuel *Question relevant when: ${living_05} = 99*			
living_06 *(required)*	9.6 What is the main fuel used for lighting?		1	1 Electricity (Sénélec)
			2	2 Electric generator
			3	3 Solar
			4	4 Gas lamp
			5	5 Oil lamp/hurricane
			6	6 Candle
			7	7 Flashlight
			99	99 Other
living_06_o *(required)*	9.6_o Other type of fuel used for lighting *Question relevant when: ${living_06} = 99*			
Questionnaire started > Beliefs				
beliefs_01 *(required)*	10.1 How likely is it that you will get bilharzia in the next 12 months?		1	1 = Very likely
			2	2 = Fairly likely
			3	3 = Neutral
			4	4 = Unlikely
			5	5 = Not at all likely
			6	6 = Affected by bilharziasis currently
beliefs_02 *(required)*	10.2 How likely is it that someone in your household will contract bilharzia in the next 12 months?		1	1 = Very likely
			2	2 = Fairly likely
			3	3 = Neutral
			4	4 = Unlikely
			5	5 = Not at all likely
			6	6 = Entire household currently affected by bilharziasis
beliefs_03 *(required)*	10.3 What is the probability that a randomly selected child in your village, aged 5 to 14 years old, will contract bilharzia in the next 12 months?		1	1 = Very likely
			2	2 = Fairly likely
			3	3 = Neutral
			4	4 = Unlikely
			5	5 = Not at all likely
beliefs_04 *(required)*	10.4 To what extent do you agree with the following statement: The land in this village should belong to the community and not to individuals.		1	1 = Completely agree
			2	2 = OK
			3	3 = Neither agree nor disagree
			4	4 = Disagree
			5	5 = Strongly disagree
beliefs_05 *(required)*	10.5 To what extent do you agree with the following statement: The water sources in this village should belong to the community and not to individuals.		1	1 = Completely agree
			2	2 = OK
			3	3 = Neither agree nor disagree
			4	4 = Disagree
			5	5 = Strongly disagree

Field	Question	Answer
beliefs_06 *(required)*	10.6 To what extent do you agree with the following statement: If I work on my own land, I have the right to use the products I obtained through my work.	1 = Completely agree 2 = OK 3 = Neither agree nor disagree 4 = Disagree 5 = Strongly disagree
beliefs_07 *(required)*	10.7 To what extent do you agree with the following statement: If I work on community-owned land, I have the right to use the products I obtained through my work.	1 = Completely agree 2 = OK 3 = Neither agree nor disagree 4 = Disagree 5 = Strongly disagree
beliefs_08 *(required)*	10.8 To what extent do you agree with the following statement: If I fish in a community-owned water source, I have the right to use the products I obtained through my work.	1 = Completely agree 2 = OK 3 = Neither agree nor disagree 4 = Disagree 5 = Strongly disagree
beliefs_09 *(required)*	10.9 To what extent do you agree with the following statement: If I harvest products from a community-owned water source, I have the right to use the products I obtained through my work .	1 = Completely agree 2 = OK 3 = Neither agree nor disagree 4 = Disagree 5 = Strongly disagree
Questionnaire started > Public good game		
game_intro	ENQU: Before entering the house, flip a coin. Note the result here.	1 Stack 2 Face
Questionnaire started > Public good game > tail result *Group relevant when: ${game_intro} = 1*		
game_note_1	We would now like to offer you 2200 FCFA as a thank you for your hospitality and the time you took with us. You are free to keep these funds for yourself. We will, however, invite you to make confidential contributions to [schoolmosqueclinic] . We will distribute this gift through two activities. During the first activity, you will receive 1200 FCFA in an envelope (show an envelope). Once you have received the 1200 FCFA, we will ask you to make a choice for this amount. A part that you will put in your pocket to keep. You and your family can decide what to do with it. The other part, you put it back in the envelope as a contribution to [schoolmosqueclinic] . I will then record your decision and seal your envelope for the [schoolmosqueclinic] . Only I will know your decision; I will not share this information with anyone in the village. No one else will know what you decide. It's your decision and yours alone. You can decide to put as much or as little as you want in the envelope. It can be 0 or 1200 CFA or any increment of 100 FCFA in between. There is no right or wrong decision. It's just a personal choice. Once we complete the survey in this village, we will meet openly at [INSERT TIME AND LOCATION] to deliver the community donation. You and your household are cordially invited to join us there. There, one of my colleagues or I will summarize all the community donations from all the participants in this village from the sealed envelopes. The envelopes are unmarked, so no one will be able to tell what a person contributed. Our research team will add the same amount from our research team funds, doubling the total available for the common goal. So, if the total amount brought by the group is 4000 CFA, we will add 2000 CFA and put on the table a total of 6000 CFA. This total amount will then be donated to [schoolmosqueclinic] .	
game_01 *(required)*	Are there any questions?	1 Yes 0 No
game_01_note *(required)*	Please explain again to the respondent. *Question relevant when: ${game_01} = 1*	
game_02 *(required)*	Please indicate if you are ready to play this game.	1 Yes 0 No
Questionnaire started > Public good game > result tails > Start of the game *Group relevant when: ${game_02} = 1*		
consent_game_1 *(required)*	Could you please acknowledge that you received 1200 FCFA? “I recognize that I have just received 1200 FCFA. » No ( ) Yes ( ) Please record the answer above.	1 Yes 0 No
consent_game_1_no *(required)*	ENQU: Please give the money to the respondent. *Question relevant when: ${consent_game_1} = 0*	
amount_01	ENQU: Ask the participant to place their contribution in the envelope. Record your contribution amount and seal the envelope. Don't force people to make a decision quickly. Give them enough time.	

Field	Question	Answer
amount_02 *(required)*	Amount paid by the respondent for game A: _____ FCFA	
amount_03	Note: Sometimes participants may ask what they can do with the money they have. Emphasize that it's up to them. They should treat this money as they would any other income they earn. Take the sealed envelope and put it in a basin dedicated for this purpose.	
game_note_2	THANKS. Now, for the second activity, you will receive 1000 FCFA in an envelope (show envelope), and have an opportunity to make a choice for this amount. A part that you will put in your pocket to keep. The other part, you put it back in the envelope as a contribution to [schoolmosqueclinic] . I will then record your decision and seal your envelope for the [schoolmosqueclinic] . Again, only I will know your decision. At the donation ceremony at [INSERT TIME AND LOCATION], we will add your contribution back into the sealed envelope to the community total. We will again add half of the same amount from our research team funds, increasing the total amount available for the common goal to one and a half times the amount donated by participants. This total amount will then be donated to [schoolmosqueclinic] . But there is a difference compared to the previous activity: if you give at least 200 CFA to the community donation, I will give you an additional 200 CFA directly here to keep for you and your family.	
game_03 *(required)*	Are there any questions? NO YES ( )	1 Yes 0 No
game_03_note *(required)*	Please explain again to the respondent. *Question relevant when: ${game_03} = 1*	
amount_04	Ask the participant to place their contribution in the envelope. Don't force people to make a decision quickly. Give them enough time. Record your contribution amount and seal the envelope.	
amount_05 *(required)*	Amount paid by the respondent for game B: _____ FCFA	
amount_06	If there are at least 200 CFA in the envelope, give the participant an additional 200 CFA.	
amount_07 *(required)*	If the amount paid by the respondent for game B is less than 200: Could you please acknowledge that you received 1000 FCFA? "I recognize that I have just received 1000 FCFA. » No ( ) Yes ( ) Please record the answer above. *Question relevant when: ${amount_05} < 200*	1 Yes 0 No
amount_07_no *(required)*	ENQU: Please give the money to the respondent. *Question relevant when: ${amount_07} = 0*	
amount_08 *(required)*	If the amount paid by the respondent for game B is at least 200: Could you please acknowledge that you received 1200 FCFA? "I recognize that I have just received 1200 FCFA. » No ( ) Yes ( ) Please record the answer above. *Question relevant when: ${amount_05} >= 200*	1 Yes 0 No
amount_08_no *(required)*	ENQU: Please give the money to the respondent. *Question relevant when: ${amount_08} = 0*	
amount_09	Take the sealed envelope and put it in a basin dedicated for this purpose. Proceed next: Thank you for taking the time to answer my questions. Please join us on [DAY/TIME] at [LOCATION] for the donation ceremony with the other villagers participating in this study.	
Questionnaire started > Public good game > Result of the game Heads *Group relevant when: ${game_intro} = 2*		
face_note_01	We would now like to offer you 2200 FCFA as a thank you for your hospitality and the time you took with us. You are free to keep these funds for yourself. We will, however, invite you to make confidential contributions to [schoolmosqueclinic] .. We will distribute this gift through two activities. During the first activity, you will receive 1000 FCFA in an envelope (show an envelope). Once you have received the 1000 FCFA, we will ask you to divide your 1000 FCFA into two parts. A part that you will put in your pocket to keep. You and your family can decide what to do with it. The other part you put back in the envelope as a contribution to [schoolmosqueclinic] .. I will then record your decision and seal your envelope for the [schoolmosqueclinic] . Only I will know your decision; I will not share this information with anyone in the village. No one else will know what you decide. It's your decision and yours alone. You can decide to put as much or as little as you want in the envelope. It can be 0 or 1000 FCFA or any increment of 100 FCFA in between. There is no right or wrong decision. It's just a personal choice. However, if you give at least 200 FCFA to the community donation, I will give you an additional 200 FCFA directly here to keep for you and your family. Once we complete the survey in this village, we will meet openly at [INSERT TIME AND LOCATION] to deliver the community donation. You and your household are cordially invited to join us there. There, one of my colleagues or I will summarize all the community donations from all the participants in this village from the sealed envelopes. The envelopes are unmarked, so no one will be able to tell what a person contributed. Our research	

Field	Question	Answer
	team will add one and a half times the same amount from our research team funds, thus we will increase the total amount available for the common goal to one and a half times the amount donated by the participants. Thus, if the total amount contributed by the group is 4000 FCFA, we will add 2000 FCFA and put on the table a total of 6000 FCFA. This total amount will then be donated to [schoolmosqueclinic] ..	
face_01 *(required)*	Are there any questions?	1 Yes 0 No
face_01_note *(required)*	Please explain again to the respondent. *Question relevant when: ${face_01} = 1*	
face_02 *(required)*	Please indicate if you are ready to play this game.	1 Yes 0 No
Questionnaire started > Public good game > Result of the game Face > Face result game start *Group relevant when: ${face_02} = 1*		
face_03	Distribute the envelope. Ask the participant to place their contribution in the envelope. Note: Sometimes participants may ask what they can do with the money they have. Emphasize that it's up to them. They should treat this money as they would any other income they earn. Take the sealed envelope and put it in a basin dedicated for this purpose. Record your contribution amount and seal the envelope. Don't force people to make a decision quickly. Give them enough time.	
face_04 *(required)*	Amount paid by the respondent for game B: _____ FCFA	
face_05	If there is at least 200 FCFA in the envelope, give the participant an additional 200 FCFA.	
face_06 *(required)*	If the amount paid by the respondent for game B is less than 200: Could you please acknowledge that you received 1000 FCFA? "I recognize that I have just received 1000 FCFA. » No ( ) Yes ( ) Please record the answer above. *Question relevant when: ${face_04} < 200*	1 Yes 0 No
face_06_no *(required)*	ENQU: Please give the money to the respondent. *Question relevant when: ${face_06} = 0*	
face_07 *(required)*	If the amount paid by the respondent for game B is at least 200: Could you please acknowledge that you received 1200 FCFA? "I recognize that I have just received 1200 FCFA. » No ( ) Yes ( ) Please record the answer above *Question relevant when: ${face_04} >= 200*	1 Yes 0 No
face_07_no *(required)*	ENQU: Please give the money to the respondent. *Question relevant when: ${face_07} = 0*	
face_08	THANKS. Now, for the second activity, you will receive 1200 FCFA in an envelope (show envelope), and make a choice again for this amount. A part that you will put in your pocket to keep. The other part, you put it back in the envelope as a contribution to [schoolmosqueclinic] . I will then record your decision and seal your envelope for the [schoolmosqueclinic] . Again, only I will know your decision. At the donation ceremony at [INSERT TIME AND LOCATION], we will add your contribution back into the sealed envelope to the community total. We will again add half of the same amount from our research team funds, increasing the total amount available for the common goal to one and a half times the total amount donated by participants. This total amount will then be donated to [schoolmosqueclinic] . But there is a difference compared to the previous activity: this time, no matter the amount of your donation, I will not distribute additional FCFA to you. There will therefore be no additional payment for you, whatever the amount you decide to put in the envelope.	
face_09 *(required)*	Are there any questions?	1 Yes 0 No
face_09_note *(required)*	Please explain again to the respondent. *Question relevant when: ${face_09} = 1*	
face_10 *(required)*	Please indicate whether, given these instructions, you are ready to play this game. Write down the result here. ENQU: Record whether the participant gives consent to participate	1 Yes 0 No
Questionnaire started > Public good game > Face game result > Face result game start > game_face_2_start *Group relevant when: ${face_10} = 1*		
face_11 *(required)*	Distribute the envelope. Could you please acknowledge that you received 1200 FCFA? "I recognize that I have just received 1200 FCFA. » Please save the response above.	1 Yes 0 No
face_11_no *(required)*	ENQU: Please give the money to the respondent. *Question relevant when: ${face_11} = 0*	

Field	Question	Answer
face_12	Ask the participant to place their contribution in the envelope. Don't force people to make a decision quickly. Give them enough time.	
face_13 *(required)*	Amount paid by the respondent for game A: _____ FCFA	
face_14	Record your contribution amount and seal the envelope. Take the sealed envelope and put it in a basin dedicated for this purpose. Thank you for taking the time to answer my questions. Please join us on {DAY/TIME} at [LOCATION] for the donation ceremony with the other villagers participating in this study.	
Questionnaire started > Observation of investigators		
_enumerator_note	This section aims to collect comments from investigators.	
enum_01 *(required)*	12.1 Did anyone other than the respondents follow the interview?	1 Yes 0 No 2 Don't know / Don't answer
enum_02 *(required)*	12.2 Approximately how many people observed the interview? *Question relevant when: ${enum_01} = 1*	
enum_03 *(required)*	12.3 What are the main materials used for the roof of the house where the head of the family sleeps?	1 [1] Concrete/cement 2 [2] Tile/slate 3 [3] Zinc 4 [4] Thatch/straw 99 [99] Other
enum_03_o *(required)*	Other types of roof materials *Question relevant when: ${enum_03} = 99*	
enum_04 *(required)*	12.4 What are the main materials used for the walls of the house where the head of the family sleeps?	1 [1] Cement bricks 2 [2] Mud Bricks 3 [3] Wood 4 [4] Sheet metal/zinc 5 [5] Clay 6 [6] Straw/stems 99 [99] Others
enum_04_o *(required)*	Other types of wall materials *Question relevant when: ${enum_04} = 99*	
enum_05 *(required)*	12.5 If observed, what are the main materials of the main floor of the house where the head of the family sleeps?	1 [1] Mud 2 [2] Earth 3 [3] Stone/terracotta 4 [4] Cement/concrete blocks 5 [5] Wood 99 [99] Other
enum_05_o *(required)*	Other types of floor materials *Question relevant when: ${enum_05} = 99*	
enum_06 *(required)*	12.6 How do you assess the respondent's overall understanding of the questions?	1 [1] The person interviewed understood everything there was to understand 2 [2] The respondent understood most things well 3 [3] The respondent understood certain things correctly 4 [4] The respondent understood very little 5 [5] The respondent understood almost nothing
enum_07 *(required)*	12.7 Please indicate the difficult parts. *Question relevant when: ${enum_06} = 3 or ${enum_06} = 4 or ${enum_06} = 5*	
enum_08 *(required)*	12.8 Please give your opinion on household income.	1 [1] Very weak 2 [2] Below average 3 [3] Medium 4 [4] Above average 5 [5] Rich
Field return *Group relevant when: ${consent} = 2*		
return_01	Good morning! Please specify the day as well as the full date of return to the field	
return_date	Date of return to the field	

Community Questionnaire - NSF DISES

Field	Question	Answer	
village_select	Select the village for the community questionnaire	1	101B, SAINT LOUIS, PODOR, AGNAM TONGUEL
		2	042A,SAINT LOUIS,DAGANA,AMOURA
		3	011A,SAINT LOUIS,DAGANA,ASSY
		4	112A, SAINT LOUIS, DAGANA, BISSETTE I
		5	081A, SAINT LOUIS, PODOR, BOULEYDI
		6	090A, SAINT LOUIS, PODOR, DADO
		7	053B,SAINT LOUIS,PODOR,DARA ALAYBE
		8	082A,,,DARA SALAM
		9	061B,SAINT LOUIS,PODOR,DEMBE
		10	030B, SAINT LOUIS, PODOR, DIABOBES
		11	111A, SAINT LOUIS, DAGANA, DIADIAM III
		12	053A,SAINT LOUIS,DAGANA,DIAGAMBAL I
		13	063B,SAINT LOUIS,PODOR,DIAMAL
		14	040B,SAINT LOUIS,PODOR,DIAMEL (DIAMEL DJIERY)
		15	012B,Louga,Louga,Diaminar
		16	022A, LOUGA, LOUGA, DIAMINAR LOYENE
		17	071B,SAINT LOUIS,PODOR,DIARRA
		18	040A, SAINT LOUIS, DAGANA, DIAWAR
		19	103B, SAINT LOUIS, PODOR, DIEGUESS DAROU SALAM
		20	032A, SAINT-LOUIS, DAGANA, Dioss Peulh
		21	072B,SAINT LOUIS,PODOR,DODEL
		22	101A, SAINT LOUIS, PODOR, DONAYE
		23	091A, SAINT LOUIS, PODOR, DOUE
		24	021A, SAINT-LOUIS, DAGANA, EL DEBIYAYE MARAYE II (16151)
		25	022B,SAINT-LOUIS,DAGANA,El Mohamed Amar
		26	062B,,,FANAYE DIERY
		27	102B, SAINT LOUIS, PODOR, FANAYE WALO
		28	100A, SAINT LOUIS, PODOR, FONDE ASS
		29	081B, SAINT LOUIS, PODOR, GAMADJI SARRE

Field	Question	Answer		
			30	060B, SAINT LOUIS, PODOR, GUEDE
			31	033A, LOUGA, LOUGA, GUEO
			32	010B,Saint-Louis,Dagana,Gueum Yalla
			33	093A,,,GUIDAKHAR
			34	073B,SAINT LOUIS,PODOR,H1 SINTHIOU GAMADJI
			35	070B,SAINT LOUIS,PODOR,H3 PETEL DIEGUESS
			36	100B, SAINT LOUIS, PODOR, KADIOGUE (DIABOBES II)
			37	030A,SAINT LOUIS,DAGANA,KASSACK NORTH
			38	010A,Saint-Louis,Dagana,Keur Birane Kobar
			39	041A,SAINT LOUIS,DAGANA,KEUR SAMBA DIA
			40	083A,,,KHARE
			41	050A, SAINT LOUIS, DAGANA, KHEUNE
			42	110B,SAINT LOUIS,DAGANA,KHOR
			43	110A,SAINT LOUIS,PODOR,KODITH
			44	091B, SAINT LOUIS, PODOR, LERABE
			45	080A,SAINT LOUIS,DAGANA,LEWAH (TEMEYE LEWAH)
			46	103A, SAINT LOUIS, PODOR, LOBBOUDOU DOUE
			47	072A,SAINT LOUIS,DAGANA,MBAGAME
			48	023B, SAINT LOUIS, DAGANA, MBERAYE
			49	012A,SAINT LOUIS,DAGANA,Mbilor
			50	032B, SAINT LOUIS, DAGANA, MBOUBENE PEULH
			51	093B,SAINT LOUIS,PODOR,MBOYO
			52	111B, SAINT LOUIS, SAINT LOUIS, Menguegne
			53	013B,Saint-Louis,Dagana,Minguene Boye
			54	042B,SAINT LOUIS,DAGANA,NADIEL I
			55	112B,SAINT LOUIS,DAGANA,NAERE
			56	013A,Saint-Louis,Dagana,Ndelle Boye
			57	043B,SAINT LOUIS,DAGANA,NDER
			58	011B,SAINT LOUIS,DAGANA,Ndiakhaye

Field	Question	Answer		
			59	020A, SAINT LOUIS,, NDIAMAR
			60	050B,SAINT LOUIS,PODOR,NDIAWARA
			61	063A, SAINT-LOUIS, DAGANA, NDIAYE MBERESSE (NDIAYE NGAINTHE)
			62	020B, SAINT-LOUIS, PODOR, NDIAYENE PENDAO
			63	090B,SAINT LOUIS,PODOR,NDIAYENE SARE
			64	070A,SAINT LOUIS,DAGANA,NDIETENE
			65	073A, SAINT LOUIS, DAGANA, NDIOUNG MBERESSE
			66	102A, SAINT LOUIS, DAGANA, NDOMBO
			67	092A,SAINT LOUIS,DAGANA,NDOMBO ALARBA
			68	041B,SAINT LOUIS,PODOR,NDORMBOSS
			69	052B, SAINT LOUIS, DAGANA, NDOURNABE DIAGANE
			70	083B, SAINT LOUIS, PODOR, NGAOULE
			71	031A,SAINT LOUIS,SAINT LOUIS,NGAYE
			72	082B, SAINT LOUIS, PODOR, NGEUNDAR (GARAGE NGUENDAR)
			73	061A, SAINT LOUIS, DAGANA, NGOMENE
			74	092B,SAINT LOUIS,PODOR,OURO MADIHOU
			75	113B, SAINT LOUIS, PODOR, PATHE GALLO
			76	062A,SAINT LOUIS,,ROSS BETHIO (ODABE NAWAR)
			77	031B, SAINT LOUIS, DAGANA, SANEINTE TACQUE
			78	113A, SAINT LOUIS, DAGANA, SAVOIGNE PIONEERS
			79	071A, SAINT LOUIS, DAGANA, TEMEYE
			80	060A,SAINT LOUIS,DAGANA,THIAGAR
			81	021B,,,THIANGAYE
			82	051B, SAINT LOUIS, PODOR, THIELAO
			83	080B,SAINT LOUIS,PODOR,THIEWLE
			84	052A,SAINT LOUIS,DAGANA,THILENE
			85	023A,Saint-Louis,Dagana,Thilla

Field	Question	Answer		
			86	043A,SAINT LOUIS,DAGANA,TREICH PEULH
			87	051A, SAINT LOUIS, DAGANA, YAMANE
			88	033B, SAINT LOUIS, DAGANA, YETTI YONI (BOUNTOU NDIEUGNE)
hhid_check	Village info: [village_select_o] [hhid_village] [region] [department] [commune] [village]			
Introduction				
sup *(required)*	1. ID Supervisor		1	Supervisor 1
			2	Supervisor 2
			3	Supervisor 3
			4	Supervisor 4
date *(required)*	2. Date			
borough	7. District Write “Don’t know” if the respondent does not know.			
gps_collect *(required)*	8. GPS coordinates *GPS coordinates can only be collected when outside.*			
description_village *(required)*	9. Briefly describe the route to the village			
full_name *(required)*	10. Name of respondent:			
phone_resp *(required)*	11. Respondent’s mobile number:			
number_hh *(required)*	12. Number of households in the village:			
number_total *(required)*	13. Village population (# people):			
city_near *(required)*	14. Name of the nearest major city:			
Possession_village				
q_15	Did the village...			
q_16 *(required)*	16.Transportation facilities (e.g. bus stop)		1	Yes
			0	No
q_17 *(required)*	17.Paved roads leading to the village		1	Yes
			0	No
q_18 *(required)*	18.Educational facilities (e.g. school)		1	Yes
			0	No
q_19 *(required)*	19.Health facilities (e.g. health center)		1	Yes
			0	No
q_20 *(required)*	20.Banking/microfinance facilities		1	Yes
			0	No
q_21 *(required)*	21.Mobile money kiosk (e.g. Orange Money)		1	Yes
			0	No
q_22 *(required)*	22. Informal lender		1	Yes
			0	No
q_23 *(required)*	23. Running drinking water for drinking		1	Yes
			0	No
q_24 *(required)*	24.Tap water system (only if 23 = YES) *Question relevant when: ${q_23} = 1*		1	Yes
			0	No
q_25 *(required)*	25. Network electricity		1	Yes
			0	No
q_26 *(required)*	26.Public latrines		1	Yes
			0	No
q_27 *(required)*	27.Garbage dump		1	Yes

Field	Question	Answer
		0 No
q_28 *(required)*	28.Agricultural/peasant group(s)	1 Yes 0 No
q_28a *(required)*	28(a): if “yes”, number of participants *Question relevant when: ${q_28} = 1*	
q_29 *(required)*	29.Business group(s)	1 Yes 0 No
q_29a *(required)*	29(a): if “yes”, number of participants *Question relevant when: ${q_29} = 1*	
q_30 *(required)*	30.Credit/financial/mutual aid group(s)	1 Yes 0 No
q_30a *(required)*	30(a): if “yes”, number of participants *Question relevant when: ${q_30} = 1*	
q_31 *(required)*	31.Women’s group(s)	1 Yes 0 No
q_31a *(required)*	31(a): if “yes”, number of participants *Question relevant when: ${q_31} = 1*	
q_32 *(required)*	32.Youth group(s)	1 Yes 0 No
q_32a *(required)*	32(a): if “yes”, number of participants *Question relevant when: ${q_32} = 1*	
q_33 *(required)*	33.Religious group(s)	1 Yes 0 No
q_33a *(required)*	33(a): if “yes”, number of participants *Question relevant when: ${q_33} = 1*	
q_34 *(required)*	34.Agricultural extension service	1 Yes 0 No
q_35_check *(required)*	35.a. Was there any deworming treatment carried out by the Ministry of Health or another organization?	1 Yes 0 No
q_35 *(required)*	35.b. When was the last deworming treatment carried out by the Ministry of Health or another organization? *Question relevant when: ${q_35_check} = 1*	
q_36 *(required)*	36.Which organization set it up? *Question relevant when: ${q_35_check} = 1*	
q_37 *(required)*	37.In the village, are there currently any development projects underway aimed at boosting agricultural or livestock productivity? 1=yes, 2=no	1 Yes 0 No
q_38 *(required)*	38.If yes, which organization implemented it? *Question relevant when: ${q_37} = 1*	
q_39 *(required)*	39.In the village, are there currently any ongoing projects aimed at reducing the prevalence of bilharzia? 1=yes, 2=no	1 Yes 0 No
q_40 *(required)*	40.If yes, which organization implemented it? *Question relevant when: ${q_39} = 1*	
q_41 *(required)*	41.In the village, are there currently any projects underway to improve water management? 1=yes, 2=no	1 Yes 0 No
q_42 *(required)*	42.If yes, which organization implemented it? *Question relevant when: ${q_41} = 1*	
q_43 *(required)*	43.How many minutes does it take to walk to the nearest store (the one where you can buy rice)? _____ [-9] Don’t know / Don’t answer *Response constrained to: .>= 0 or .= -9*	
q_44 *(required)*	44.How many minutes does it take to go to the nearest store (the one where you can buy rice) by car/motorcycle? _____ [-9] Don’t know / Don’t answer *Response constrained to: .>= 0 or .= -9*	
q_45 *(required)*	45.How many minutes does it take to walk to the nearest doctor? _____ [-9] Don’t know / Don’t answer *Response constrained to: .>= 0 or .= -9*	
q_46 *(required)*	46.How many minutes does it take to go to the nearest doctor by car/motorcycle? _____ [-9] Don’t know / Don’t answer *Response constrained to: .>= 0 or .= -9*	
q_47 *(required)*	47.How far is the nearest weekly market (in kilometers)? _____ [-9] Don’t know / Don’t answer *Response constrained to: .>= 0 or .= -9*	
q_48 *(required)*	48.How far is the nearest bus stop (in kilometers)? _____ [-9] Don’t know / Don’t answer *Response constrained to: .>= 0 or .= -9*	
q_49 *(required)*	49.How far is the nearest water point (in kilometers)? _____ [-9] Don’t know / Don’t answer	

Field	Question	Answer
	Response constrained to: .>= 0 or .= -9	
q_50 *(required)*	50.How far is the nearest paved road (in kilometers)? _____ [-9] Don't know / Don't answer *Response constrained to: .>= 0 or .= -9*	
q_51 *(required)*	51.How far is the nearest health infrastructure (in kilometers)? _____ [-9] Don't know / Don't answer *Response constrained to: .>= 0 or .= -9*	
q_52 *(required)*	52.What is the distance to the nearest public primary school serving this community (in kilometers)? *Response constrained to: .>= 0 or .= -9*	
q_53 *(required)*	53.How many classrooms are there in the nearest public primary school? *Response constrained to: .>= 0 or .= -9*	
q_54 *(required)*	54.In this school, how many classrooms are not constructed of brick with tin roofs or other permanent building materials? *Response constrained to: .>= 0 or .= -9*	
q_55 *(required)*	55.How many students regularly attend the nearest public primary school? *Response constrained to: .>= 0 or .= -9*	
Name and telephone number		
q56_1	56.What is the name and telephone number of the principal of the nearest public primary school?	
q56_2 *(required)*	Name	
q56_3 *(required)*	Phone number *Response constrained to: regex(.,'^(75|77|78|76|70|30|33)\d{7}$') or regex(.,'^(999)') or regex(., '^(888)') or regex(.,'^(777)') or regex(.,'^(666)')*	
q_57 *(required)*	57.What is the distance to the nearest public high school serving this community (in kilometers)? *Response constrained to: .>= 0 or .= -9*	
q_58 *(required)*	58.How many classrooms are there in the nearest government public secondary school? *Response constrained to: .>= 0 or .= -9*	
Name and telephone number		
q59_1	59.What is the name and telephone number of the principal of the nearest public secondary school?	
q59_2 *(required)*	Name	
q59_3 *(required)*	Phone number *Response constrained to: regex(.,'^(75|77|78|76|70|30|33)\d{7}$') or regex(.,'^(999)') or regex(., '^(888)') or regex(.,'^(777)') or regex(.,'^(666)')*	
q60 *(required)*	60.What is the distance to the nearest Islamic school (madrasa) serving this community (in km)? *Response constrained to: .>= 0 or .= -9*	
q61 *(required)*	61.How many students regularly attend the nearest Islamic school (madrasa)? *Response constrained to: .>= 0 or .= -9*	
q62 *(required)*	62.What is the main staple food in the village?	1 [1] Corn 2 [2] Rice 3 [3] Wheat 4 [4] Potatoes 5 [5] Cassava 6 [6] Soy 7 [7] Sweet potatoes 8 [8] Yams 9 [9] Sorghum 10 [10] Plantain -95 [-95] Other (specify): ____ -9 [-9] Don't know / Don't answer
q62_o *(required)*	Other specify *Question relevant when: ${q62} = -95*	
Price paid in the village		
q63	63.What is the price that households in the village currently pay for […] (CFA per kilogram)? _____ [-9] Don't know / Don't answer	
q63_1 *(required)*	1. Urea *Response constrained to: .>= 0 or .= -9*	
q63_2 *(required)*	2. Manure *Response constrained to: .>= 0 or .= -9*	
q63_3 *(required)*	3. Rice *Response constrained to: .>= 0 or .= -9*	
q63_4 *(required)*	4. Corn *Response constrained to: .>= 0 or .= -9*	
q63_5 *(required)*	5. Mil *Response constrained to: .>= 0 or .= -9*	
q63_6 *(required)*	6. Sorghum *Response constrained to: .>= 0 or .= -9*	

Field	Question	Answer
q63_7 *(required)*	7. Cowpea *Response constrained to: .>= 0 or .= -9*	
q63_8 *(required)*	8. Tomatoes *Response constrained to: .>= 0 or .= -9*	
q63_9 *(required)*	9. Onions *Response constrained to: .>= 0 or .= -9*	
q63_10 *(required)*	10. Peanuts *Response constrained to: .>= 0 or .= -9*	
q64 *(required)*	64. How much does a village farm worker earn on average per day during the most recent harvest? _____ [-9] Don't know / Don't answer *Response constrained to: .>= 0 or .= -9*	
q65 *(required)*	65. How much does a village agricultural technician earn on average per day today? _____ [-9] Don't know / Don't answer *Response constrained to: .>= 0 or .= -9*	
q66 *(required)*	66. How much does a non-agricultural worker in the village earn on average per day at present? _____ [-9] Don't know / Don't answer *Response constrained to: .>= 0 or .= -9*	
q67 *(required)*	67. Is there anything else we need to know about your village? _____	

Focus group discussions

Objectives:

We intend to conduct one focus group discussion in each of the sampled villages with 6-10 participants, with three main objectives:

- We want to understand better how systems of common pool resource (CPR) management work at the baseline and to understand the heterogeneity in this aspect among villages. Measures of existing CPR management institutions can be used to understand variations in the impact of our information interventions.
- Between baseline and endline, we want to observe and analyze village level changes in common pool resource management, distributional implications, as well as labor distribution. This may be treatment-induced or due to external developments.
- We want to understand what further variables and aspects might be of interest to analyze further in the endline focus group discussions and what aspects we might miss in the overall project design.

Question catalogue:

<u>Tenurial control over surface water, aquatic vegetation, and land</u>

1. WHAT NEARBY BODY OF SURFACE WATER DOES THE COMMUNITY USE MOST HEAVILY? FOR WHAT PURPOSE(S) IS IT USED (FOR EXAMPLE, COLLECTING WATER, WASHING CLOTHES OR DISHES, BATHING, SWIMMING, FISHING)? HOW MANY VILLAGERS USE IT FOR THAT PURPOSE IN A NORMAL WEEK?
2. WHO CAN ACCESS THIS BODY OF WATER? DO CERTAIN INDIVIDUALS HAVE SPECIAL RIGHTS REGARDING WATER USE OR ACCESS (E.G. FISHING RIGHTS, ABILITY TO USE WATER FOR IRRIGATION OR COOKING AND DRINKING IN THE HOME)? CAN PEOPLE FROM OUTSIDE THE COMMUNITY USE THE WATER?
3. HOW IS CONTROL OVER ACCESS TO THIS BODY OF WATER EXERCISED? ARE PEOPLE EXCLUDED, CHARGED A FEE TO ACCESS, OR SOMETHING ELSE? WHAT, IF ANY, PUNISHMENT IS THERE FOR UNAUTHORIZED USE OF THE WATER?
4. IS ANYONE RESPONSIBLE FOR MAINTAINING THIS BODY OF WATER (I.E. CLEARING DEBRIS TO IMPROVE ACCESS TO THE WATER OR TESTING WATER QUALITY)? IF SO, HOW FREQUENTLY DO THEY DO SO? AND DO THEY EFFECTIVELY MAINTAIN THE WATER IN GOOD CONDITION?
5. DOES ANYONE OWN RIGHTS TO THE AQUATIC VEGETATION IN THE WATER OR ARE THEY SHARED BY AND ACCESSIBLE TO ALL THOSE WHO CAN ACCESS THE WATER? IF THERE IS ANY DIFFERENCE, WHAT IS THAT DIFFERENCE AND WHY DOES IT EXIST?
6. DOES ANYONE IN THIS COMMUNITY PRESENTLY COLLECT AQUATIC VEGETATION?
   IF SO, WHY (WHAT DO THEY DO WITH THE VEGETATION)? AND WHO DOES THE WORK OF COLLECTING THIS VEGETATION (MEN OR WOMEN OR CHILDREN, RICHER OR POORER INDIVIDUALS)? IF NOT, WHY DO THEY NOT DO SO?
7. DO THE THINGS THAT WE TALKED ABOUT ALSO APPLY TO OTHER NEARBY BODIES OF SURFACE WATER THAT THE VILLAGE MIGHT USE, OR ARE THERE IMPORTANT DIFFERENCES? IF SO, WHAT DIFFERENCES?

8. ON WHAT LAND DO INDIVIDUALS GRAZE THEIR ANIMALS? HOW DOES THIS DIFFER BETWEEN CATTLE, GOATS, SHEEP, AND CHICKENS?
9. HOW SECURE IS PROPERTY IN YOUR COMMUNITY, FOR EXAMPLE OF AGRICULTURAL LAND? DO YOU HAVE TO CONTINUOUSLY USE THE LAND? IS IT RISKY TO RENT YOUR LAND OUT OR TO LEAVE IT FALLOW FOR A WHILE?

General well-being and health dynamics

10. OVER THE LAST 10 OR SO YEARS, HAVE STANDARDS OF LIVING IN THIS COMMUNITY IMPROVED, STAYED THE SAME, OR DECLINED? WHAT CHANGES HAVE YOU NOTICED – IN HEALTH, LIFE EXPECTANCY, INCOMES, THE ASSETS PEOPLE OWN, ETC.?
11. DO YOU AND OTHER PEOPLE IN YOUR VILLAGE GENERALLY THINK THAT IT IS POSSIBLE TO BE SUCCESSFUL ALONE? OR IS THERE A STRONG PERCEPTION THAT ONE NEEDS TO BE PART OF A LARGE GROUP THAT SUPPORTS EACH OTHER IN ORDER TO BE SUCESSFUL?
12. DO YOU AND OTHER PEOPLE IN YOUR VILLAGE GENERALLY THINK THAT PEOPLE WHO PUT EFFORT WORKING END UP BETTER? OR POTENTIALLY WORSE? DO YOU CONSIDER THIS FAIR?
13. HOW BROADLY SHARED ARE ANY IMPROVEMENTS OR DECLINES AMONG HOUSEHOLDS IN THIS COMMUNITY? IF SOME GROUPS HAVE DONE BETTER AND OTHERS WORSE, WHY DO YOU THINK THAT IS? IS IT FAIR THAT SOME HOUSEHOLDS ARE IN BETTER MATERIAL CIRCUMSTANCES THAN OTHERS, HAVE THEY EARNED IT?
14. OVER THE LAST 10 YEARS OR SO, HAVE YOU CHANGED YOUR PRACTICES IN FISHING, CROP PRODUCTION OR LIVESTOCK HUSBANDRY SIGNIFICANTLY? IF SO, HOW? WHAT WAS THE REASON?
15. DO MEN AND WOMEN IN YOUR COMMUNITY GENERALLY DO THE SAME KIND OF WORK; OR ARE THERE DIFFERENCES? FOR EXAMPLE, WHAT ABOUT HOUSEHOLD WORK, AGRICULTURE, AND LABOR FOR OTHER INCOME TYPES?
16. OVER THE LAST 10 OR SO YEARS, HAS THE PREVALENCE OF SCHISTOSOMIASIS INCREASED, STAYED THE SAME, OR DECLINED? WHAT CHANGES HAVE YOU NOTICED – IN THE EFFICACY OF DEWORMING TREATMENTS, TRENDS IN THE AGE/SEX/OCCUPATION OF THOSE WHO ARE INFECTED, ETC.? WHY DO YOU THINK THESE CHANGES HAVE OCCURRED? HOW BROADLY SHARED ARE ANY IMPROVEMENTS OR DECLINES AMONG HOUSEHOLDS IN THIS COMMUNITY? IF SOME GROUPS HAVE DONE BETTER AND OTHERS WORSE, WHY DO YOU THINK THAT IS?
17. WHAT ARE THE TOP 3 PROBLEMS THAT AFFECT MANY FAMILIES IN THIS VILLAGE?

THANK YOU FOR YOUR HELPFUL RESPONSES TO AND DISCUSSION OF THESE QUESTIONS.

Donation game on public good contribution

Introduction

The envisioned experiments in the form of donation games take place in the frame of a broader project on the effects of a novel intervention concerning the regulation of schistosomiasis infection risk and associated benefits for water access and food security. Harvesting aquatic vegetation has been shown to reduce the risk of schistosomiasis, by reducing the habitat of a development stage host (snails). Village residents need to contribute labor on an ongoing basis towards such harvesting, which may be subject to the freeriding problems often seen in the management of common pool resources. We propose two information treatments to motivate harvesting: the first provides information about the public health benefits of such aquatic vegetation clearing, while the second provides information about the potential private benefits due to composting the vegetation or feeding it to livestock. We will implement these communications in a randomized controlled trial across villages, communicating either none, only public, only private, or both types of benefits.

Sample Selection

The participants in the donation games will be the same as in the household surveys. The public good experiments will take place after interviewing the individual participants in the household survey.

Community gift

Pro-social behavior needs an actual social public good (so not paying the money back within the group, as in the often-used public good experiments). The community gift should afford comparability of the experiment both over time and across villages. We will offer 3 options for the community gift and let the village representative choose one of these during the introductory visits. We will offer a contribution to a local mosque, a contribution to a school/ madrasa that the village's children attend, or a contribution to the village's health center. All respondents within the village are presented with the same public good beneficiary of their donations.

Outline and treatments

<u>Standard public good experiment (Game A):</u>

Before the game starts, each participant receives an envelope with 1200 CFA (one 500 and seven 100s notes). The enumerator reads the script (see Scripts below) to the participant. The script states that respondents should divide up their 1200 CFA in one part to keep for their own use (private) and a second part to donate for the community gift (public contribution) to the village-serving organization previously chosen by the village chief. Individuals' public contributions are noted down by the game coordinator. The game coordinator stresses that aggregate public contributions, after the household surveys are finalized in the village, will be increased by 50% by the research team and donated to the pre-designated community gift in a public ceremony at the end of the research team visit to the village. The enumerator gives the participant the time and place of that gathering. This should instill trust in participants that their contribution to the community gift will actually reach its destination safely.

In order to make sure that participants fully understand the game, the enumerator will give a demonstration at the beginning. He/ she will show the participant his endowment - 500 FCFA in five 100 FCFA-notes. He/ she will then distribute that in two - 200 FCFA will go in his/ her own pocket, whereas 300 will go into a prepared envelope as a donation, and close the envelope. Then, the enumerator will draw from another pocket another envelope, which is to

represent the donation of another participant (300 FCFA). The enumerator will then open both envelopes, put the money together, count it, and top it up by a factor of 1.5. He/ she will explain that this money would now be donated to the chosen community cause.

Impure public good game (Game B):
In this variation of the standard game, we will change the incentives for the public good contribution. First, the initial endowment is 1000 FCFA (one 500 and five 100 notes). For the first 200 FCFA ("threshold") contributed to the public good, the respondents unconditionally obtain an individual benefit of 200 FCFA. This means that if they at least donate 200 FCFA, they will, after the game, be given 200 FCFA on top of the initial endowment. They do not obtain further private incentives for a higher public contribution (just the public incentive remains). All else stays equal.

We will compare the pure versus impure public good contributions in a within-individual design, i.e., each individual plays twice, once the standard game and once the variation explained above. The order is randomized (first play one game, then the other) at individual level.

PUBLIC GOODS GAME SCRIPT (& PROTOCOL)
Before entering the household, toss a coin. Note the result here.

Coin toss result:

Heads [ ]

Tails [ ]

If the coin shows head, read "Heads" script and play game A (pure public good) first, and game B (impure public good) second.

If the coin shows tail, play "Tails" script and play game B (impure public good) first and game A (pure public good) second. Follow the respective script carefully.

HEADS - Game A (pure public good) first, and Game B (impure public good) second

We would now like to give you 2200 FCFA in appreciation of your hospitality and the time you have taken with us. You are free to keep those funds for yourself. We will, however, invite you to make confidential contributions to [*INSERT GIFT PURPOSE*]. We will distribute this gift as part of two activities.

In the first activity, you will receive 1200 FCFA in an envelope (*hold up an envelope*). Once you receive the 1200 FCFA, we will ask you to divide up your 1200 FCFA in two parts. One part you will put in your pocket to keep. You and your family can decide what to do with it. The other part, you put back into the envelope as a contribution to [*INSERT GIFT PURPOSE*].

I will then record your decision and seal your envelope for the [*INSERT GIFT PURPOSE*]. Only I will know your decision; I will not share this information with anyone in the village. No one else will know what you decide. This is your decision and yours only. You can decide to put as much or as little as you want into the envelope. It can be 0 or 1200 FCFA or any 100 FCFA increment in between. There is no right or wrong decision. It is just a personal choice.

Once we have finished the survey in this village, we will meet openly at [*INSERT TIME AND PLACE*] to hand over the community gift. You and your household are cordially invited to join us there. There, one of my colleagues or I will sum up all the community gifts of all participants in this village from the sealed envelopes. The envelopes are not marked, so no one will be able to tell what

any one individual contributed. Our research team will add another half times the same amount from our research team funds, such that the total amount donated to the common purpose is one and a half times the sum donated by you and the other community participants. So, if the total amount contributed by the group is 4000 FCFA, we will add 2000 FCFA and donate a total of 6000 FCFA. This total amount will then be donated to [*INSERT GIFT PURPOSE*].

Enumerator will proceed to do a demonstration of the game with a small amount of FCFA. After demonstration:

B1. Do you have any questions about the game?

[0] No
[1] Yes **(If yes, answer any questions about the game and then ask again. Do not continue until the respondent says no.)**

B2. Are you willing to participate in the game?

[0] No
[1] Yes

If No, continue to second game.

If Yes, and consent is given, proceed and hand out the envelope. *Have the participant place their contribution in the envelope. Record the contributed amount and seal the envelope. Do not pressure people to make a decision quickly. Give them sufficient time.*

Note: Sometimes participants might ask what they can do with the money they have. Emphasize that is up to them. They should treat this money as they would any other income they earned.

Take the sealed envelope and put it into a basin that is dedicated to this purpose. Then proceed:

Thank you. Now, for the second activity, you will receive 1000 FCFA in an envelope (hold up an envelope), and again divide up your 1000 FCFA in two parts. One part you will put in your pocket to keep. The other part, you put back into the envelope as a contribution to [*INSERT GIFT PURPOSE*].

I will then record your decision and seal your envelope for the [*INSERT GIFT PURPOSE*]. Again, only I will know your decision. At the donation ceremony at [*INSERT TIME AND PLACE*], we will again add your contribution in the sealed envelope to the community total. We will again add half the same amount from our research team funds, thus increasing the total amount donated to the common purpose to one and a half times the sum donated by you and the other community participants. This total amount will then be donated to [*INSERT GIFT PURPOSE*].

But there is one difference from the previous activity: If you donate at least 200 FCFA to the community gift, I will give you an additional 200 FCFA right now to keep for yourself and your family.

Enumerator will proceed to do a demonstration of the game with a small amount of FCFA. After demonstration:

B1. Do you have any questions about the game?

[0] No
[1] Yes **(If yes, answer any questions about the game and then ask again. Do not continue until the respondent says no.)**

B2. Are you willing to participate in the game?

[0] No
[1] Yes

If No, *thank the participant for their time and depart.*
If Yes, and consent is given, proceed and hand out the envelopes*. Have the participant place their contribution in the envelope. Do not pressure people to make a decision quickly. Give them sufficient time. Record the contributed amount and seal the envelope. If at least 200 FCFA are in the envelope, hand the participant an additional 200 FCFA.*

Note: Sometimes participants might ask what they can do with the money they have. Emphasize that is up to them. They should treat this money as they would any other income they earned.

Take the sealed envelope and put it into a basin that is dedicated to this purpose. Then proceed:

Thank you for taking the time to respond to my questions. Please join us at *DAY/TIME* at *LOCATION* for the donation ceremony with the other villagers participating in this study.

TAILS: Game B (impure public good) first, and Game A (pure public good) second

We would now like to give you 2200 FCFA in appreciation of your hospitality and the time you have taken with us. You are free to keep those funds for yourself. We will, however, invite you to make confidential contributions to [*INSERT GIFT PURPOSE*]. We will distribute this gift as part of two activities.

In the first activity, you will receive 1000 FCFA in an envelope (hold up an envelope). Once you receive the 1000 FCFA, we will ask you to divide up your 1000 FCFA in two parts. One part you will put in your pocket to keep. You and your family can decide what to do with it. The other part, you put back into the envelope as a contribution to [*INSERT GIFT PURPOSE*].

I will then record your decision and seal your envelope for the [*INSERT GIFT PURPOSE*]. Only I will know your decision; I will not share this information with anyone in the village. No one else will know what you decide. This is your decision and yours only. You can decide to put as much or as little as you want into the envelope. It can be 0 or 1000 FCFA or any 100 FCFA increment in between. There is no right or wrong decision. It is just a personal choice. However, if you donate at least 200 FCFA to the community gift, I will directly here give you an additional 200 FCFA back to keep for yourself and your family.

Once we have finished the survey in this village, we will meet openly at [*INSERT TIME AND PLACE*] to hand over the community gift. You and your household are cordially invited to join us there. There, one of my colleagues or I will sum up all the community gifts of all participants in this village from the sealed envelopes. The envelopes are not marked, so no one will be able to tell what any one individual contributed. Our research team will add one half times the same amount from our research team funds, thus we will increase the total sum available to the common purpose to one and a half times the amount donated by participants. So, if the total amount contributed by the group is 4000 FCFA, we will add 2000 FCFA and place a total of 6000 FCFA on the table. This total amount will then be donated to [*INSERT GIFT PURPOSE*].

Enumerator will proceed to do a demonstration of the game with a small amount of FCFA. After demonstration:

B1. Do you have any questions about the game?

[0] No

[1] Yes **(If yes, answer any questions about the game and then ask again. Do not continue until the respondent says no.)**

B2. Are you willing to participate in the game?

[0] No
[1] Yes

If No, continue to second game.

If Yes, and consent is given, proceed and hand out the envelopes. *Have the participant place their contribution in the envelope. Do not pressure people to make a decision quickly. Give them sufficient time. Record the contributed amount and seal the envelope. If at least 200 FCFA are in the envelope, hand the participant an additional 200 FCFA.*

Note: Sometimes participants might ask what they can do with the money they have. Emphasize that is up to them. They should treat this money as they would any other income they earned.

Take the sealed envelope and put it into a basin that is dedicated to this purpose. Then proceed:

Thank you. Now, for the second activity, you will receive 1200 FCFA in an envelope (hold up an envelope), and again divide up your 1200 FCFA in two parts. One part you will put in your pocket to keep. The other part, you put back into the envelope as a contribution to [*INSERT GIFT PURPOSE*].

I will then record your decision and seal your envelope for the [*INSERT GIFT PURPOSE*]. Again, only I will know your decision. At the donation ceremony at [INSERT TIME AND PLACE], we will again add your contribution in the sealed envelope to the community total. We will again add one half the same amount from our research team funds, thus increasing the total sum available to the common purpose to one and a half times the total amount donated by participants. This total amount will then be donated to [*INSERT GIFT PURPOSE*].

But there is one difference from the previous activity: This time, no matter how much you donate, I will not hand out the additional FCFA to you. So there will be no additional payout to you, regardless of the amount that you decide to put into the envelope.

Enumerator will proceed to do a demonstration of the game with a small amount of FCFA. After demonstration:

B1. Do you have any questions about the game?

[0] No
[1] Yes **(If yes, answer any questions about the game and then ask again. Do not continue until the respondent says no.)**

B2. Are you willing to participate in the game?

[0] No
[1] Yes

If No, thank the participant for their time and depart.

If Yes, and consent is given, proceed and hand out the envelope. *Have the participant place their contribution in the envelope. Record the contributed amount and seal the envelope. Do not pressure people to make a decision quickly. Give them sufficient time.*

Note: Sometimes participants might ask what they can do with the money they have. Emphasize that is up to them. They should treat this money as they would any other income they earned.

Take the sealed envelope and put it into a basin that is dedicated to this purpose. Then proceed:

Thank you for taking the time to respond to my questions. Please join us at [*DAY/TIME*] at [*LOCATION*] for the donation ceremony with the other community members participating in this study.

DONATION CEREMONY (same for both versions)

*At the **donation ceremony**, present a box with all the sealed envelopes. Then, open the envelopes and take out the funds from both games. Do this quickly and try not to show too much how much is in each envelope. Count the total and announce the total. Then, double the total and place the full amount on the table. Donate the full amount to a representative for the chosen community gift.*

Questionnaire participant d'intervention - NSF DISES

April 2024

1. Demander aux groupes de traitement A & C
   1.1 Pensez-vous que retirer les plantes aquatiques peut affecter votre risque de contracter la bilharziose vous-meme? [1 = Beaucoup plus de risque, 2 = Plus de risque, 3 = Neutre, 4 = Moins de risque, 5 = Beaucoup moins de risque; 6=Affecté par la bilharziose actuellement]
   1.2 Pensez-vous que retirer les plantes aquatiques peut affecter le risque des membres de votre ménage de contracter la bilharziose? (Si il y a déjà un membre du ménage affecté par la bilharziose, poser la question pour toutes les personnes non affectées actuellement) [1 = Beaucoup plus de risque, 2 = Plus de risque, 3 = Neutre, 4 = Moins de risque, 5 = Beaucoup moins de risque, 6= Tout le ménage est affecté par la bilharziose actuellement]
   1.3 Pensez-vous que retirer les plantes aquatiques peut affecter le risque des enfants de votre village, âgé entre 5 et 14 ans, de contracter la bilharziose? [1 = Beaucoup plus de risque, 2 = Plus de risque, 3 = Neutre, 4 = Moins de risque, 5 = Beaucoup moins de risque]
   1.4 Est-ce que cela vaut la peine d'utiliser votre temps pour récolter le cerato ? [1 = Oui, tout à fait ; 2 = Probablement ; 3 = Je ne suis pas sûr ; 4 = Probablement pas; 5 = Définitivement pas]

2. Demander aux groupes de traitement B & C
   2.1 Pouvez-vous améliorer votre production agricole en appliquant du compost à base de cerato ? [1 = Oui, ça peut beaucoup s'améliorer ; 2= Oui, ça peut beaucoup s'améliorer un peu ; 3 = Non, ça ne s'améliorera pas ; 4 = Je ne sais pas]
   2.2 Est-ce que cela vaut la peine d'utiliser votre temps pour récolter le cerato ? [1 = Oui, tout à fait ; 2 = Probablement ; 3 = Je ne suis pas sûr ; 4 = Probablement pas; 5 = Définitivement pas]
   2.3 Après avoir regardé la vidéo, êtes-vous plus ou moins susceptible d'acheter des plantes aquatiques récoltées par d'autres? [1 = Beaucoup moins susceptible, 2 = Moins susceptible ; 3 = Aucun changement ; 4 = Plus susceptible ; 5 = Beaucoup plus susceptible]

3. Demander à tous les groupes de traitement
   3.1 Jusqu'à quel point avez-vous acquis de nouvelles connaissances ou idées grâce à la vidéo ? [1 = Pas du tout ; 2 Très peu; 3 = Un peu; 4 = Beaucoup; 5 = Énormément]
   3.2 Êtes-vous plus ou moins susceptible de récolter des plantes aquatiques après avoir regardé la vidéo? [1 = Beaucoup moins susceptible, 2 = Moins susceptible ; 3 = Aucun changement ; 4 = Plus susceptible ; 5 = Beaucoup plus susceptible]
   3.3 Êtes-vous susceptible d'entrer dans l'eau pour éliminer le cerato sans équipement de protection ? [1 = Oui, tout à fait ; 2 = Probablement ; 3 = Je ne suis pas sûr ; 4 = Probablement pas; 5 = Définitivement pas]

English translation

Participant intervention questionnaire - NSF DISES

April 2024

1. Ask treatment groups A & C

    1.1 Do you think removing aquatic plants can affect your risk of contracting bilharzia yourself? [1 = Much more risk, 2 = More risk, 3 = Neutral, 4 = Less risk, 5 = Much less risk; 6=Affected by bilharzia currently]

    1.2 Do you think that removing aquatic plants can affect your household members' risk of contracting bilharzia? (If there is already a household member affected by schistosomiasis, ask the question for all people currently not affected) [1 = Much more risk, 2 = More risk, 3 = Neutral, 4 = Less risk, 5 = Much less risk, 6 = The entire household is currently affected by bilharzia]

    1.3 Do you think that removing aquatic plants can affect the risk of children in your village, aged between 5 and 14, of contracting bilharzia? [1 = Much more risk, 2 = More risk, 3 = Neutral, 4 = Less risk, 5 = Much less risk]

    1.4 Is it worth your time to harvest cerato? [1 = Yes, absolutely; 2 = Probably; 3 = I'm not sure; 4 = Probably not; 5 = Definitely not]

2. Ask treatment groups B & C

    2.1 Can you improve your agricultural production by applying cerato-based compost? [1 = Yes, it can improve a lot; 2= Yes, it can definitely improve a little; 3 = No, it will not improve; 4 = I don't know]

    2.2 Is it worth your time to harvest cerato? [1 = Yes, absolutely; 2 = Probably; 3 = I'm not sure; 4 = Probably not; 5 = Definitely not]

    2.3 After watching the video, are you more or less likely to purchase aquatic plants collected by others? [1 = Much less likely, 2 = Less likely; 3 = No change; 4 = More likely; 5 = Much more likely]

3. Ask all treatment groups

    3.1 To what extent have you gained new knowledge or ideas from the video? [1 = Not at all; 2 Very little; 3 = A little; 4 = A lot; 5 = Extremely]

    3.2 Are you more or less likely to harvest aquatic plants after watching the video? [1 = Much less likely, 2 = Less likely; 3 = No change; 4 = More likely; 5 = Much more likely]

    3.3 Are you likely to enter water to eliminate cerato without protective equipment? [1 = Yes, absolutely; 2 = Probably; 3 = I'm not sure; 4 = Probably not; 5 = Definitely not]