

Executive Summary

Nazava sells its water filters to create social impact as measured by improved health, monetary savings, time savings and greenhouse gas emission reductions. In order to validate this impact model, two Global Social Benefit Fellows conducted research from June to August 2016 across three islands in Indonesia, to gather data from 87 participants, 70 of whom completed a semi-structured interview and mobile survey while the remaining 17 completed a semi-structured interview only. The research team conducted interviews to gather qualitative information on the social impact metrics in Sabu and Kupang. During this time, the mobile survey was pilot tested with 11 participants in Sabu and Kupang so that it could be revised for clarity and accuracy. More interviews and the revised survey were completed with the remaining participants on Java Island, which allowed for more qualitative and quantitative data collection. This social impact assessment details the quantitative and qualitative findings on health benefits, monetary savings, and time savings as concluded from the survey and interview data.

The study indicates that health benefits are more evident in remote and isolated communities such as Sabu Island where purified water is hard to access and the value of purification is not well understood. Across our study we found that the Nazava users surveyed saved on average 2 hours and 40 minutes per week on water purification activities after purchasing the filter. This represents an approximately 60 percent reduction in time spent on the process of obtaining purified water. Similarly, quantitative data gathered through the mobile survey indicates that Nazava users surveyed saved on average 22,000 Indonesian Rupiah (US \$1.71) per week on water purification materials, a decrease of approximately 50 percent. Lastly, other factors that beneficiaries reported during semi-structured interviews demonstrated additional impacts on general quality of life for filter users.

This report presents an analysis of Nazava's impact model concerning time savings, monetary savings and health benefits. It analyzes the depth of impact Nazava filters are having on beneficiaries in regards to each of these dimensions across a variety of geographic locations.



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**Nazava users who took the social impact survey reported words they associated with Nazava. These words have been translated and are featured in the Word Cloud on page 1 which was created using tagul.com. The cloud displays that each of the impact metrics analyzed in this report – time-saving, cost-savings, and health benefits – are salient in the mindset of Nazava consumers. Not only those three aspects, but also other positive aspects related to quality of life improvements are reported as concepts associated with Nazava.*



Research Project Overview

Origins of This Social Impact Research

According to recent data from the World Bank, almost 33 million Indonesian people still lack access to an improved water source.¹ This problem is pronounced in remote and isolated communities where over 20 percent of the population is affected.² Nazava seeks to address this need through its affordable point-of-use water filters. It targets its sales to those in urban and peri-urban areas making between \$5-7 a day but, through utilizing key partnerships, has created last mile distribution strategies able to reach more remote and isolated communities where the income averages less than \$5 a day. As a social enterprise, Nazava's goal is to achieve social impact in a financially sustainable way. The impact it seeks to impart lies in four interrelated dimensions – time savings, economic savings, health benefits and greenhouse gas emission reduction. Nazava's operational impact model predicts that people who use their filters will be able to spend less time on boiling, obtaining supplies for boiling (wood, LPG etc.), and obtaining bottled gallons of water. Furthermore, using the filter is expected to reduce the amount of money beneficiaries have to spend on supplies for boiling (wood, LPG etc.) as well as bottled gallons of water. The use of a reliable purification system like Nazava's water filters is expected to decrease the incidence of waterborne illness and promote improved health for beneficiary families. Finally, the overall reduction in boiling water is proposed to reduce the amount of greenhouse gas emitted by the household.

As a social enterprise hoping to validate the above-stated model and gather evidence of impact, Nazava requested this research project in social impact assessment. Nazava partnered with the Global Social Benefit Fellows from the Miller Center for Social Entrepreneurship to conduct independent research to validate its impact model and measure its impact in the lives of beneficiaries.

Research Overview

Our research team visited nine different locations across three islands in Indonesia which were selected by Nazava, based on the availability of Nazava employees, resellers or



partners who could facilitate connections between the researchers and filter users and/or nonusers. The research team sought to measure Nazava's social impact in terms of health, time savings and financial savings, using a mixed methods approach of mobile surveys and interviews. Research began with a pilot mobile survey for users and nonusers of Nazava filter products. We collected data from seven participants on Sabu Island and four participants in Kupang on Timor Island. The research team then revised the mobile survey based on expressed recommendations by these 11 participants in the pilot. The complete set of filter users and non-filter user survey questions, in both English and Bahasa Indonesia, can be found in Appendix A.

The final mobile survey was implemented across Java Island in seven villages/cities, resulting in 59 analyzable surveys (78 percent filter users; and 22 percent non-filter users). The variety of locations where research was conducted resulted in a sample that was diverse in respondent experience with water purification. However, it was evident that within each location there was generally one source of water shared by the majority of the people in that area. Since water source may be a critical determinant of the household filtering practice and impact, data points were analyzed in three groups based on the common initial source type. These groups were: piped water, well water, or another source such as mountain water or refillable water bottles. By analyzing by source, the varying types and depth of impact that resulted from using a filter were uncovered.

Overall, the representativeness of this study's findings is limited due to the very small analyzable sample size both for qualitative data (n=87) and quantitative data (n=59). Furthermore, the locations where research was conducted were not randomly selected and therefore may not be representative of Nazava's whole beneficiary base. Since Nazava estimates that it has reached approximately 300,000 beneficiaries, the data collected represents just a fraction of this larger population (.02 percent).³ However, by segmenting the results into source type, we can draw conclusions about surveyed subgroups that may reveal insights about similar subgroups in the larger Nazava market. In stratifying our sample by initial water source (piped, well, other), we see the total sample split approximately in thirds to reveal relatively equal subsamples. The wider Nazava market, however, does not necessarily have equal subpopulations using piped water, well water or other sources such as bottled water; therefore, the findings cannot necessarily be extrapolated to the wider Nazava beneficiary population. Through field observations, other factors such as income and location appear to be linked to the participant's initial water source type so analyzing the quantitative data comprehensively and in stratified segments reveals layers of impact that may vary across different segments of Nazava's beneficiaries.



Survey Participants Separated by Source Type

Water Sources	Number of participants in each category (Users Initial)	Number of participants in each category (Nonusers)
Piped Water	14	5
Well Water	16	5
Other	16	3
Total:	46	13

Table 1. Filter users initial and nonusers' current water sources.

In addition to the quantitative data analysis, our surveys were supplemented by qualitative data through approximately 87 semi-structured interviews. Participants included the 59 participants who completed the survey, as well as resellers and other individuals involved in Nazava water filter distribution and promotion. Throughout our research we were continually humbled by the welcoming attitudes of everyone that met with us. We always received joyous greetings, and oftentimes were presented with homemade treats, and sometimes even entire meals or traditional gifts. Upon entering each home, we became accustomed to the local cultural traditions of taking off shoes at the front door, sitting sideways on the floor, and eating snacks when offered. The combination of qualitative data from the informal interviews with quantitative data from the survey allows us to measure Nazava's social impact with a holistic approach.

Greenhouse gas (GHG) emission reduction is a pillar of Nazava's impact model. The amount of GHG released or reduced as a result of filter adoption is affected by whether wood or LPG is used, as well as how much of each resource is being used and how much water is being boiled. This research project could not measure change in GHG emissions as a result of Nazava water filters, for three chief reasons. First, filter users often reported continuing to use fuel after their filter purchase for other domestic activities and the mobile survey was not sensitive enough to detect incremental quantitative decreases in weekly fuel use as a result of filter use. Second, to describe a reduction in GHG emissions, one must track data over time, and our survey was a one-time data capture, not designed to do this. Retrospective recall of fuel use is fraught with biases. A more robust research method would be a survey that prospectively checks fuel use before (the baseline) and after the introduction of filters. Third, any reported household reduction in GHG emissions for water purification by boiling would have to be distinguished from ongoing GHG emissions from other activities, such as cooking food, as well as the possible GHG emissions produced through Nazava filter production.

While conclusive results on quantitative GHG emissions cannot be drawn from the research, study participants did report a reduction in the practice of boiling water. Forty-one



percent of the sample surveyed reported that the opportunity to reduce the use of wood or LPG fuel was a major reason they purchased a filter. This suggests that for most users, reduction in GHG emissions is an indirect impact they do not necessarily seek out or associate as a benefit of their Nazava purchase. However, our study found that the surveyed users who reported that they do not boil water for drinking rose from 17 percent before the filter purchase to 41 percent after the filter purchase. This suggests that Nazava users do reduce their frequency of boiling for water purification purposes, which could thereby reduce GHG emissions. Due to the fact that this report could not include GHG emission reduction as a dimension of social impact, a different study design with repeated pre- and post-filter adoption, would be required to answer this question. The massive mobilization to accelerate the adoption of cleaner cookstoves is bedeviled by this same challenge of measuring GHG reductions in low-income households.⁴

Report Organization

The Reported Dimensions of Impact section will delve into the measured impacts of Nazava on user health, time-saving, financial-saving, and quality of life. Each section first describes the analysis of the qualitative data gathered through semi-structured interviews and then the quantitative data gathered through a mobile survey. The qualitative data, as mentioned in the “Research Overview” includes information from users and nonusers who were surveyed as well as Nazava resellers and partners who were not surveyed.

Reported Dimensions of Impact

Prior to our field research, we anticipated measuring Nazava’s impact in health, time savings and economic savings. After completing our surveys and interviews we realized that these impacts are dispersed unevenly across different regions in Indonesia where Nazava filters are sold. Some areas might experience time and economic savings while others only experience economic savings, for example. Evidence of health benefits was most clearly present on remote Sabu Island, whereas time savings and economic savings were the more prevalent and dominant impact types throughout the other regions. Moreover, we discovered additional impacts in quality of life improvements for users beyond health, time savings and economic savings, but again, the specific configuration of impacts depended on region and water source type. Our results demonstrate that Nazava does indeed have an impact upon



people's quality of life, but that the specific impacts vary across different communities and homes.

Reduction in Waterborne Illness



*The village leaders of Sabu Island greeted us at the Mayor's house to shower us with a song of blessing.
Photo Credit: Santa Clara University*

Sabu Island Interview Findings:

According to the World Development Indicators Database, 94.2 percent of urban Indonesians have access to an improved water source.⁵ At the same time, however, just over 20 percent of the rural Indonesian population is still without access.⁶ The rural population of Indonesia is approximately 46.3 percent of the total population, which, according to recent census data equals 119,600,332 people.⁷ This would indicate that 24 million rural people, in addition to approximately 8 million urban people, live without access to what is classified as an "improved water source". Yet, even what might be defined as an "improved water source", such as piped water, is still water contaminated with bacteria unless the consumer goes to extra lengths to purify it through boiling or buying branded water bottle gallons. Therefore, the exact number of people in Indonesia without purified water and at risk for waterborne illness is unknown but extends well beyond the 32 million people reported by the World Development Indicators Database. On Java Island, where villages are more peri-urban, our reports uncovered



that there are a handful of families where children experienced diarrhea before but not after using a Nazava filter. Overall, however, health improvements were clearly evident on the remote island of Sabu, where great hope has been placed in the filters to provide the island's residents clean drinking water.

Nazava's water filters appear to be central to the island's strategy for eradicating waterborne disease and for helping health workers promote healthier lives for residents. Generally, on Java Island or regions near large, more developed cities, our respondents described common knowledge of the causal relationship between unpurified water and waterborne illness. On Sabu, however, awareness of that relationship does not appear to be universal, nor does it appear to shape the daily behavior of the island's residents. The qualitative research conducted on Sabu suggests that through the activities of partners, Nazava water filters have been adopted and provide health benefits. Lives are being improved significantly due to an increase in knowledge about the need to filter water, coupled with access to these products.

School children on Sabu Island call Nazava's water filters "*magic*." Their eyes are wide with awe as they watch the simple filtration system turn unclear, contaminated water to clear, fresh water without the laborious process required for boiling. Government and non-governmental organizations on Sabu respond to this impact with passion and determination to make a change. One means to this change is through establishing new health laws, such as one that will require each school on Sabu to purchase and utilize Nazava water filters. During our time on Sabu we visited two schools that have already purchased filters and are experiencing impact. The process of impact in schools has several stages and involves purchasing filters and educating staff, students and their parents about the risks behind drinking impure water.

- First, staff is educated about the need to purify water and how to care for and clean the filters.
- Second, this information is then communicated to students, who relay the information to parents when they are excited about the filters.
- Third, the school staff supports water sanitation discussion with parents at parent-teacher conferences as well.

This innovative strategy is just one of many on the island set forth by the organizations involved, and the ideas are headed by a remarkable island leader named Ibu Tri. She is a healthcare worker, which is known as a "sanitarian" on Sabu and is responsible for health promotion and health research on the island. Ibu Tri has taken it upon herself to drive change in the health of Sabu's local people as she saw a natural connection between her work promoting health on



Ibu Tri is Nazava's main reseller on Sabu Island, and she is central to the network of organizations on the island devoted to promoting filters and educating about water sanitation.

Photo Credit: Santa Clara University



the island and selling water filters that would counter waterborne illness. After each conversation with Ibu Tri, we were struck by her tenacity and selflessness as she successfully drives change in the health of Sabu Island residents. After our research on Sabu, we presented to Nazava the list and descriptions of the organizations and individuals involved in promoting water filters on Sabu, and emphasized how Ibu Tri is central to the entire working network.

Ibu Tri does not implement improved health on Sabu by herself, but rather serves as a leader, a catalyst for change. She is surrounded by other passionate individuals and organizations dedicated to this cause. One such individual is the mayor of Sabu, Manaby. The mayor understands the challenges that waterborne illnesses pose to his community. He expressed gratitude for our research on his island's water and health challenges.

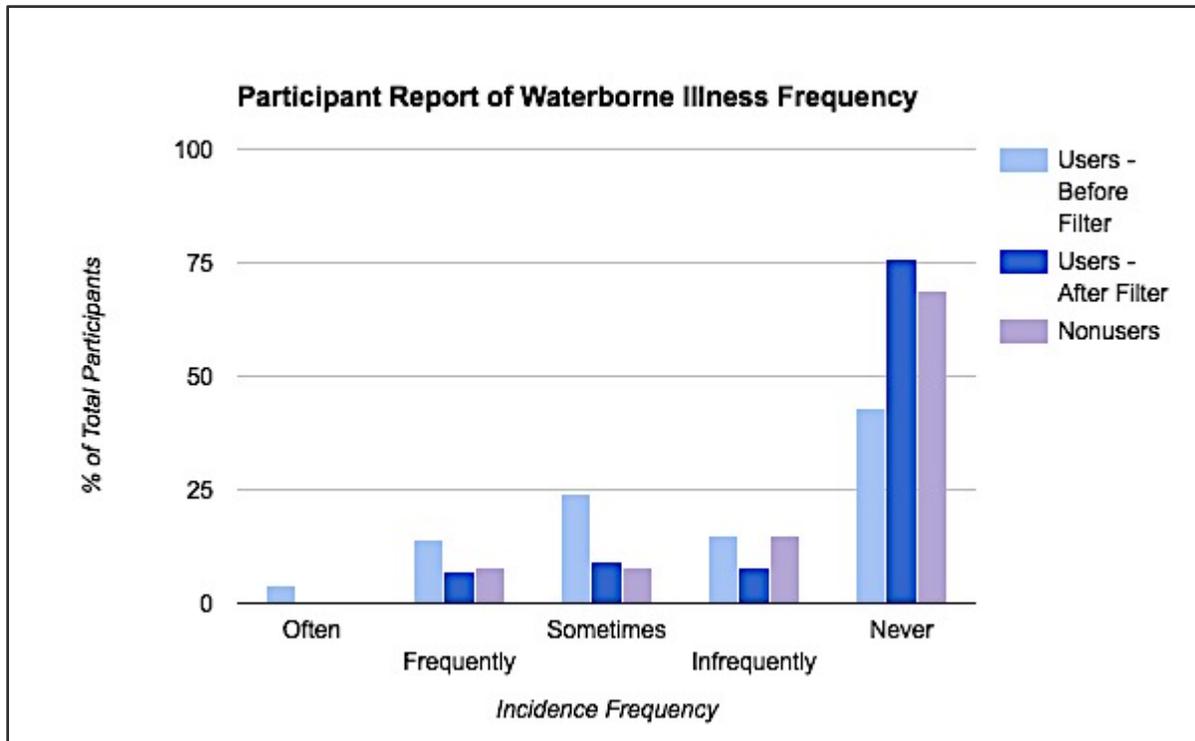
Our research on Sabu suggests that with a partnership strategy to reach other small islands among the 17,000 islands in the Indonesian archipelago, Nazava could greatly enhance its impact on human health. Our interviews on Sabu suggest that communities in remote areas have considerable unmet demand for water filter technologies, and that Nazava could increase its sales and its positive impact on human health by reaching these communities.

Survey Findings:

Health impacts across the seven locations surveyed on Java island (excluding the interview data collected on Sabu Island and in Kupang on Timor Island) could not be conclusively measured quantitatively, but data was gathered on self-reported waterborne illness rates.

Prior to purchasing the filter, 43 percent of Nazava users in this sample stated that they “never” experience illness related to water purification (diarrhea etc.). When asked how often they experience waterborne illness after purchasing a Nazava filter, the population of people who responded “never” rose to 76 percent. While this initially may seem like an obvious health improvement, it should be put in context: the majority of filter nonusers (69 percent of our sample) responded that they currently “never” experience waterborne illness. It is possible that filter users are overestimating the frequency of experiencing these illnesses before using their filter. It is also possible that the lower frequency of waterborne illness in the nonuser population is a contributing factor in their decision *not* to purchase a filter, indicating an initial difference between the user and nonuser group. Overall, the limited sample size of either group limits the conclusions that can be drawn. When analyzing the data on incidence of waterborne illness by source type, the rates did not visibly differ between those who initially used a piped water source, those who initially used a well water source, and those who used another source. For nonusers, these rates also did not differ between source type groups.





Graph 1. Displaying percentage of survey participants who reported various rates of waterborne illness.

When survey participants responded that they have experienced or do experience waterborne illness such as diarrhea either before or after their filter purchase, they were asked to denote the frequency ranging from “infrequently” (once every couple of years) to “often” (multiple times each month). As reflected in the above statistics, prior to purchasing the filter, 57 percent of filter users experienced any frequency of waterborne illness, ranging from “infrequently” to “often”. After purchasing the filter, the percentage of users experiencing any kind of waterborne illness, such as diarrhea, fell to 24 percent with no one responding that they experience illness “often”. Again, the small sample size as well as possible self-report bias limits the representativeness of these results in comparison with the wider Nazava user population. Overall, however, 80 percent of participants stated that improving their health and the health of their families was a main motivation for their Nazava filter purchase, suggesting that Nazava’s impact metric for improving family health is salient in their consumers whether or not it is quantitatively displayed.



Summary of Health Impact Findings:

Altogether, analysis of the qualitative interview data and the quantitative survey data suggests that Nazava greatly impacts health for users that might not otherwise purify water with an alternative method. The quantitative data collection was conducted in urban and more developed regions, suggesting that perhaps water filters are less impactful for health in areas that are more developed. These developed areas exist on large islands like Java, and it appears to be common knowledge that one should purify water prior to consumption in order to prevent waterborne illnesses. Contrasting the unclear health results from users on Java Island to the qualitative health results from users on Sabu Island allows us to conclude that Nazava's filters can offer more significant health benefits to those that live in more remote locations where there is not necessarily already a widespread practice of water purification. Although health impact was not largely quantified in survey results from Java Island, the filters' impact on Sabu Island was clearly displayed and gathered in the qualitative research on Sabu, meaning that Nazava can in fact impact users' health where health improvement is a need.



Time and Financial Savings



*A woman explains how Nazava's water filter has helped her save time and money.
Photo Credit: Santa Clara University*

Interview Findings: ***Time and Financial Savings***

The most widespread impact of the Nazava filters is in the time and money savings for customers. Most of the interviewees reported that the biggest advantage of Nazava's filters is their ability to help families, particularly the women within those families, to save money and save time by eliminating the need to boil water or buy bottles of water. This impact was reported in six of the seven areas surveyed on Java Island. Many expressed the value behind simplifying the water purifying process, especially in no longer needing to boil water (which means not having to buy LPG or wood far away, and not having to wait for the water to cool before consuming - which can extend into the value of saving time/money in regards to drinking water).



In one village, for example, a user reported that she valued no longer having to buy gallons of bottled water because she used to have to travel a far distance to purchase the purified water.

In four of the areas surveyed on Java, there were homes that particularly valued the monetary savings aspect of using a Nazava water filter. For example, a user who was surveyed and interviewed owned a restaurant and purchased Nazava's largest water filter to purify water for customers. The owner of the restaurant expressed that he was intrigued by the economic savings generated from using a filter, since he would no longer need to buy branded gallon water. In another village, a reseller reported that selling the filters has increased her salary and that she is able to save the money for herself.

Due to limited time, specific data was not collected regarding exactly how the money and time saved are allocated by users. This data would be valuable in discerning the direct benefit that users experience from saving time and money through Nazava's filters. However, because the users themselves sought after and valued saving time and money through investing in a water filter, one can reasonably infer that these benefits add to an overall sense of life improvement for the individuals in charge of purifying drinking water in the home, who are overwhelmingly women. The hope, of course, is that the women who purify water for their families can invest the time and money saved into improving their own and their families' lifestyles, perhaps through dedicating time and resources to children's education or having more time to work and generate income. These are admirable aspirations for time and financial savings, and it would be beneficial to collect further information from the users regarding this subject to gain greater detail about how saving time and money can improve life in users' households.

Survey Findings:

Time Savings

The mobile survey collected data directly regarding time spent at all steps of the water purification process, including gathering water from the source, obtaining resources for boiling, buying refillable or branded water bottles, and the actual boiling process itself.

Those responding to the survey report an average of approximately 4 hours (244 minutes) per week on activities related to water purification prior to their filter purchase. Nonusers spent a similar amount of time, roughly 4.4 hours (266 minutes) per week, on the same purification activities. After purchasing the Nazava filter, users estimated that they now spend an average of 1.38 hours (83 minutes) per week on activities related to water purification. This equates to an average savings of 2 hours and 40 minutes (160 minutes) per week for filter users.



As stated in the Research Overview, in an effort to parse apart the various water purification experiences of the small and diverse sample size, the research team separately analyzed the results by their common initial water source type (i.e. piped, well, or other). When analyzing these results by separate initial source groups, there are some noticeable differences between the groups. For instance, those who had piped water as their initial source spent on average about 5 hours (303 minutes) per week on water purification activities such as boiling water, buying fuel, buying wood or buying bottled water prior to their filter purchase. Before purchasing the Nazava filter, those with wells as their initial water source, spent an average of about 4.75 hours (287 minutes) per week on these activities, and those with other sources of water spent just 2.25 hours (134 minutes) per week. The “other” source group could be spending less time on water purification activities before purchasing their filter because many of them reported their source as branded bottled water or mountain water obtained through refillable gallon containers. If a user was purchasing branded or refillable gallon containers, s/he did not necessarily boil water as it was often perceived as clean, which would eliminate the need to spend time on boiling or time on buying fuel or wood to use for boiling water. Given the variation between source type groups and time savings, an estimate of time savings based on the limited sample would be approximately a 60 percent reduction in time spent on water purification within this sample after a Nazava filter purchase.

Average Time Spent Sourcing Water

Source Before Filter	Average Time Per Week Before Filter (in minutes)	Average Time Per Week After Filter (in minutes)	Average Time Difference (in minutes)
Piped	302.68	111.34	191.34
Well	287.34	83.05	204.30
Other	134.06	54.92	79.14
Total	243.67	83.36	160.31

Table 2. Average time spent by Nazava users before filter purchase, after filter purchase and the average time-savings separated by initial water source.

When measuring time use for each source group after purchase of the filter, the well water group had the highest savings (204 minutes per week) although the piped water group experienced very similar savings (191 minutes per week). Again, the smaller amount of time-savings observed in the “other” group (79.14 minutes), might be explained by the use of



refillable or branded bottles, eliminating the need to boil water or spend time on gathering boiling resources prior to *or* after the filter purchase.

Overall, the survey suggests that users do save a significant amount a time after purchasing the Nazava filter compared to before their purchase. However, important caveats are in order. Despite the precision of the numbers reported here, caution is required in making any inference of generalizability to all of Nazava filter users. First of all, the survey offered participants ranges of times when assessing their activities. For example, when asked how much time they spend gathering fuel each week, participants could respond 0-30 minutes, 30 minutes-1 hour, 1-2 hours, 2-3 hours, or more than 3 hours. When analyzing and compiling the data we used the average of the time ranges to calculate the total time spent (i.e. using 15 minutes for the 0-30 minute range). Therefore, to say that an exact average of 160 minutes is saved overall would be an overestimate of the precision of the survey responses. Furthermore, there are inherent limitations in asking people to estimate their regular time use and even further limitations in asking people to *recall* their regular time use prior to a certain event (such as purchasing a Nazava filter). Incorrect perceptions of how much time is spent on these activities as well as the potential response bias of participants who feel they are expected to report time saved after purchasing the filter could be a potential limitation in this data. The researchers moderated these potential limitations by emphasizing in both written and spoken informed consents that the Miller Center Global Social Benefit Fellows were independent researchers who did not work *for* Nazava and were interested in receiving the most honest responses, whether negative or positive.

Furthermore, participants were asked about time spent buying wood, buying fuel and boiling specifically as it relates to obtaining purified water. The time reduction does not necessarily mean that participants spend any less time buying fuel or wood for other purposes (cooking etc.) but only that the time they spend buying these resources specifically for water purification purposes is reduced. In addition, due to the skip-logic of the survey, information about the participant's current water source for filtering or boiling was not gathered if the participant selected that she no longer boils water. Information about the source, such as whether it was the same source used before the filter purchase, was determined by using qualitative interview data but there are still assumptions made that the time to reach the source and the frequency of source visits remain the same before and after the purchase. Lastly, it is assumed that if users still obtain wood and fuel to boil, then the process of gathering and buying those resources takes the same amount of time as before the purchase even if the physical quantity of the resources has decreased. For instance, buying one canister of fuel is assumed to take the same amount of time as buying two.



The quantitative findings from this survey regarding total time spent on obtaining water may be a conservative estimate when compared with a literature review of relevant data on time-use in Indonesia. The data from this review suggested that Indonesian women spend approximately one hour a day on collecting water, equating to seven hours a week.⁸ The quantitative findings of this survey suggest, with limitations taken into account, that the users surveyed can spend as much as four hours a week on water purification-related activities such as obtaining wood and/or fuel for boiling; obtaining water from a source such as a pipe, well or refillable water bottle; buying branded water bottles; and the actual process of boiling kettles of water each day. From the sample, it seems that the amount of time participating in these activities can be reduced by as much as an hour to almost three and a half hours per week if a filter is used as the main method of water purification. As stated above, an estimate of the reduction in time spent on water purification activities within this sample, considering the data limitations would be approximately 60 percent. However, it must be noted that while time may not be spent buying fuel or gathering wood to boil water, time may still be spent gathering these resources to cook food in general. Savings in time spent on water-purification does not necessarily mean that the time is diverted away from domestic activities completely or that the women who are typically in charge of water purifying have a drastic increase in “free” time. However, the data does suggest that Nazava filters lead to a more time-efficient purification process and the qualitative data, analyzed above, supports this finding. When asked about purchasing reasons in the survey, 63 percent affirmed that saving time in everyday life was at least one of the main reasons their household purchased a Nazava filter.

Survey Findings: ***Financial Savings***

The survey collected data concerning the amount of money spent on water-purification currently for nonusers, and before and after the filter purchase for users. Questions concerning amount of money spent on wood, fuel, and branded or refillable water bottles were posed to both users and nonusers.

The collected data suggests that users spent an average of about 41,500 Indonesian Rupiah (IDR) (\$3.19 USD) per week to obtain pure water before their filter purchase. The nonusers from the sample spend approximately 29,000 IDR (\$2.20 USD) per week. The discrepancy between the user spending rate before purchasing the filter and the nonuser spending rate could signify a difference between people who choose to purchase the filter such that those who are spending more per week to get pure water are more attracted to the prospect of saving money by purchasing a filter. However, this difference could also be attributed to the small sample size participating in the research as well as the user population misremembering the amount they spent per week on these resources prior to purchasing the



filter. Overall, the spending on water-purification resources for users after purchasing a Nazava filter fell to approximately 19,000 IDR per week (\$1.48 USD). This results in an average savings of over 22,000 IDR per week (\$1.71 USD).

It is useful to analyze the data points stratified by initial source type (piped, well, or other) in order to address differences within the sample. When analyzing each of the three source groups, those using a piped water source initially spent approximately 58,035 IDR per week (\$4.48 USD). Those whose initial water source was a well spent approximately 40,100 IDR per week (\$3.08 USD) while those with a water source defined as “other” spent less at 28,400 IDR per week (\$2.18 USD). The difference at least in the reduced spending for the “other” source group might be attributed to the “other” source group often using refillable or branded water bottles directly rather than boiling, thus reducing the need to spend money on fuel or wood.

Average Monetary Spending on Water Purification

Source Before Filter	Average Spending Per Week Before (IDR)	Average Spending Per Week After (IDR)	Average Spending Difference (IDR)
Piped	58,035.71	25,357.14	32,678.57
Well	40,097.5	13,941.25	26,156.25
Other	28,437.50	19,187.50	9,250.00
Total:	41,501.30	19,240.43	22,260.87
Total (in USD):	\$3.19	\$1.48	\$1.71

Table 3. Average spending on water-purification resources by Nazava users before filter purchase, after filter purchase and average decrease in spending separated by water source type.

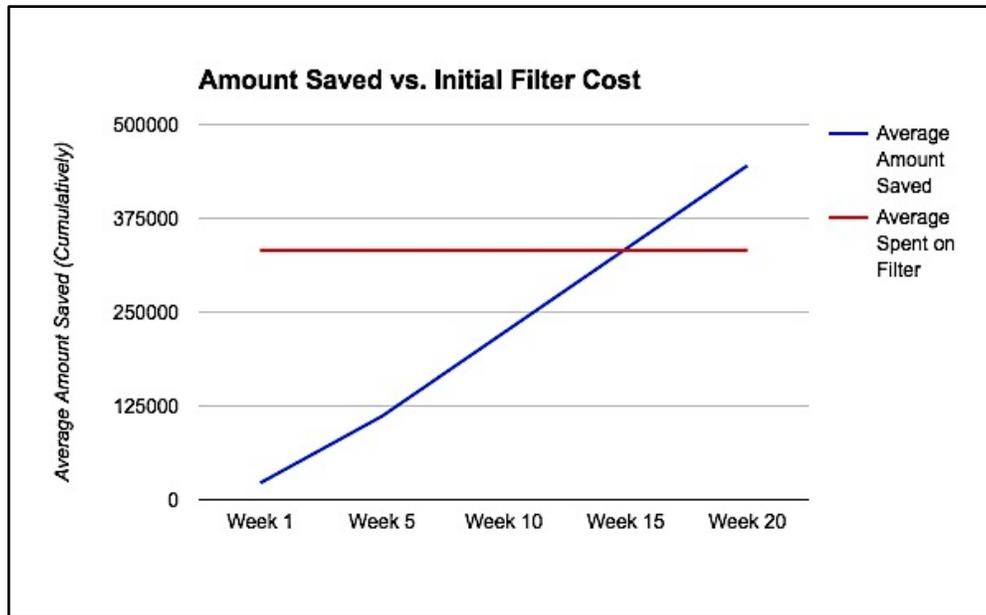
When averaging the amount of money spent on items related to water-purification after purchasing a Nazava filter, the piped water group had the highest savings amount of approximately 33,000 IDR per week (\$2.54 USD). The well source group attested to a similar amount of savings per week at a reduction of 26,000 IDR per week (\$2.00 USD). The amount saved for users in the “other” source group was much less at 9,250 IDR (\$0.71 USD) per week. This distinct smaller savings rate could again be possibly attributed to the “other” group’s reliance on refillable and branded bottles before and after. Refillable bottles and branded bottles that may have initially been used as a water source with minimal boiling or no boiling, could now continue to be purchased as a water source that is then filtered. Thus, money spent for fuel or wood for boiling would not be taken into account or reduced significantly after the purchase.



This data suggests that after the purchase of a filter, users do reduce spending related to water-purification each week. The caveats in the interpretation of money savings are very similar to those described above for time savings. The reduction in spending on fuel or wood applies only to fuel or wood being purchased for boiling water purposes. In reality, even if people responded in the survey that they were no longer boiling water, people were still likely spending money on fuel and wood for cooking purposes. Thus, the findings indicate only that the fuel and wood being purchased by users is being used less for the purpose of purifying water. This study does not indicate conclusively that users are no longer spending money on fuel or wood, since these resources are important for other domestic activities requiring energy. Further limitations could be found in the accuracy constraints of asking users to estimate the costs of items and furthermore recall the cost of items, which they may no longer currently purchase.

Nazava filters require an upfront expense that can be more significant for some consumers than others. For instance, many of the areas surveyed simply pay for the filter outright, while, in Sabu and Kupang, credit plans appear more common. This is understandable, however, considering the proportion of people living in poverty in Sabu Rajua (31 percent) and in Kupang (20 percent).⁹ Conversely, the other locations surveyed on Java experience poverty rates between 7 and 11 percent respectively.¹⁰ Still, in locations on Java, many customers pay for their filter over the course of ten installments. The average total amount spent on the filter across participants was 332,500 IDR (\$25.43 USD). The majority of participants (approximately 70 percent) bought the 13.5-liter Nazava Bening 1, which costs 260,000 IDR (\$19.89 USD). An additional 20 percent bought a larger, more expensive filter such as the 16-liter Eksklusif model or the 27.5-liter Bening XL. The remaining 10 percent purchased the smaller, less expensive 6-liter Bening Small. Considering the upfront cost of the filter and the average savings per week after using the filter, users would expect for the filter to break even after approximately 15 weeks. In other words, within 3.75 months the cumulative amount saved would surpass the initial amount spent on the filter based on the data collected in this sample.





Graph 2. The average amount saved each week measured cumulatively in comparison to average amount spent to purchase the filter.

Economic-savings seem to be experienced overall by the participants in the sample who purchased a Nazava filter. Nazava’s target market includes those making between \$5-7 a day in urban or peri-urban areas as well as those making less than \$5 a day in more rural segments. The money saved each week across all source type groups ranged from 9,250 IDR to 33,000 IDR, which may not seem like a very significant amount especially in terms of USD (\$0.71 to \$2.54 USD saved per week). However, for those earning \$5.00 USD a day for 7 days, this equates to about 4.9 percent saved each week. To achieve this kind of economic savings would be no insignificant feat, considering an average savings of over \$1.50 a week can lead to a significant positive impact for consumers in Nazava’s target market. In fact, 76 percent of the filter users stated that saving money was a key reason behind their purchase of Nazava.

Summary of Time and Financial Savings Findings:

Altogether, the qualitative and quantitative data collected suggest that Nazava’s water filters do in fact save time and money for families. During interviews it was commonly expressed that families were primarily drawn towards purchasing a filter in order to save money and time. Although the different areas expressed greatest concern differently (whether a family was seeking time savings, monetary savings or a combination of the two), the fact that the expression of each existed at all allows us to acknowledge that impact does exist in both time savings and financial savings for users. Additionally, the quantitative data gathered from the mobile survey supports this conclusion, as families were on average found to save roughly 2



hours and 40 minutes per week as well as \$1.71 a week after purchasing Nazava's water filter. For families making \$5-\$7 a day or less, saving time and money could be very impactful in improving quality of life and opportunity to make or save more money. Further research should be done to examine exactly how the extra time and money are spent, however, especially to discern the specifics on what the impact looks like in users' homes.

Improving Quality of Life



*The women in one household with a Nazava filter constantly smiled and giggled affectionately throughout interviews.
Photo Credit: Santa Clara University*

Each area of impact contributes to end-beneficiaries' improvements in quality of life. Social impact was measured in terms of health benefits, time saving and money saving, as reported, but it was discovered that customers benefited from the filters in other ways as well. Across multiple other areas surveyed on Java, other common benefits reported about Nazava filters included the "simple" and easy to use nature of the technology. The explanation was often



supplemented by gratitude towards no longer needing to boil water for drinking purposes. This relief was due to the more tedious process involved with boiling water, as it usually involved gathering water by purchasing unbranded gallon water, receiving water through a pipe system or collecting it from a community or in-home well. Additionally, LPG or wood needed to be purchased or gathered, and then the individual would boil the water, wait for it to cool, and in some cases filter the boiled water through a cloth to further cleanse the water of impurities. Many homes reported that boiling the water itself is not enough, as a chemical residue remains at the bottom of a pot after boiling water, and this needs to be separated from any water that is consumed. Compared to this method, of course, Nazava's water filter is incredibly simple and more practical for users, but this is, of course, in a general sense, since the boiling process or other alternative purification methods are not exactly the same for every household. Even still, Nazava's filters were found to be uncomplicated and easy to use, an impact and benefit that should be noted. In the survey sample, 87 percent of users responded that they were either satisfied or very satisfied with their Nazava filter. Furthermore, when asked what the best method of water purification is in their opinion, 94 percent of users responded Nazava water filters.

In one village, a handful of families commented that Nazava's filtered water offers better tasting water than that of alternative methods, even compared to competitor PureIt Water Filters. Multiple users reported that it tastes "fresh." This impact might seem minor, but in the lives of Nazava's consumers it could easily be highly valued.

Finally, in two other research areas, a few customers have developed new applications for their water filters, using the purified water to wash vegetables and rice. This application is beyond the intended filtration of water for drinking. This extends filter use to sanitation of food for consumption, which is also important for people's health. More research would need to be done to determine whether or not customers that use the filter for washing produce were doing so with purified water prior to having a filter. It would also be important to determine how many customers use the filter for this purpose, as well as whether or not it is actually appropriate to promote this use of the filter. This research project was not designed to investigate the washing of vegetables and rice with filtered water, and only discovered this practice accidentally, as a result of field activities. We gathered no evidence suggesting this practice is common, and we cannot quantify any actual benefits. However, Nazava's water filters do offer these customers a feeling of a better lifestyle and the perception of improved health practice. Thus, for the purpose of this report, we categorize this as an improvement in quality of life.¹¹



Summary of Improving Quality of Life:

Lifestyle improvement can be defined and categorized in numerous ways, and these interview responses offer a lens into social impact areas that might otherwise be overlooked by those other than the end-beneficiaries themselves. With this in mind, Nazava should consider reporting additional dimensions of social impact provided by its filters. Consumers recognize and value positive effects like having a simplified purification system, being able to wash food with a more sanitary/simple method, consuming better-tasting water, and surely additional effects still to be uncovered.



Appendix A – Surveys

**Note: All survey questions are included in the below translated copies but not all participants were asked each question as skip logic was introduced into the survey to allow participants to skip questions that did not apply to them.*

User Survey (English translation):

Hello, our names are Katie Waddell and Meghan Carlsen. We come from Santa Clara University in the United States of America. This survey will ask questions about your family's water usage and should take about 20 minutes to complete. If at any time you wish to discontinue the survey or skip a question please feel free to do so. Your participation is completely voluntary and there will not be any rewards for participating or costs for withdrawing.

In addition, please know that you can respond to each question completely honestly, no matter how positive or negative. All information provided will be anonymous but the overall results will be published at our university in the United States, as well as presented to the Nazava company and its stakeholders. We do not work at or come from Nazava, but instead we work for Santa Clara University, which is partnered with Nazava. We welcome all feedback, but please respond only to what you are comfortable with answering. Thank you again! We very much appreciate your time and responses as we continue with our work.

Do you understand the purpose of this survey and feel willing to participate?

- Yes
- No

If "No"

Please hand the phone back to the researchers Katie and Meghan. Thank you for your time!

If "Yes"

How many people are in your family?

[Fill in the Blank]

What size is your Nazava filter?

- 6 liter, Nazava Bening Small
- 13.5 liter, Nazava Bening 1
- 13.5 liter, Nazava Bening 2
- 16 liter, Nazava Eksklusif
- 18 liter, Nazava Trendy Dispenser



- 27.5 liter, Nazava Bening XL

Please enter your Nazava filter serial number. (If you do not know, please skip this question):

[Fill in the Blank]

How often do you fill the filter per week?

[Fill in the Blank]

The following questions will be about your activities BEFORE your family purchased a Nazava filter.

BEFORE PURCHASING A NAZAVA FILTER....

How did you boil your drinking water?

- I boiled by burning wood
- I boiled by burning fuel
- I boiled by burning wood and/or fuel
- I did not boil water

BEFORE PURCHASING A NAZAVA FILTER....

How many bundles of wood did you burn per week?

[Fill in the Blank]

BEFORE PURCHASING A NAZAVA FILTER....

What was the approximate weight of each bundle? (in kilograms):

[Fill in the Blank]

BEFORE PURCHASING A NAZAVA FILTER....

How much time did you spend getting wood per week?

- 0 - 30 minutes
- 30 minutes - 1 hour
- 1 - 2 hours
- 2 - 3 hours
- More

BEFORE PURCHASING A NAZAVA FILTER....

How much did each bundle cost? (in rupiah) (if you do not buy wood, please fill in 0):

[Fill in the Blank]

BEFORE PURCHASING A NAZAVA FILTER....



What size fuel canister did you purchase? (If you do not use gas, please select other and move on to the next question)

- 3 kg
- 12 kg
- 3 kg and 12 kg
- Other

BEFORE PURCHASING A NAZAVA FILTER....

How many 3 kg canisters of fuel did you use per week?

- 0
- 1 canister
- 2 canisters
- 3 canisters
- 4 canisters
- 5 canisters or more

BEFORE PURCHASING A NAZAVA FILTER....

How much did each 3 kg canister of fuel cost? (in Rupiahs):

[Fill in the Blank]

BEFORE PURCHASING A NAZAVA FILTER....

How many 12 kg canisters of fuel did you use per week?

- 0
- 1 canister
- 2 canisters
- 3 canisters
- 4 canisters
- 5 canisters or more

BEFORE PURCHASING A NAZAVA FILTER....

How much did each 12 kg canister of fuel cost? (in Rupiahs):

[Fill in the Blank]

BEFORE PURCHASING A NAZAVA FILTER....

How many liters of kerosene did you buy each week?

[Fill in the Blank]

BEFORE PURCHASING A NAZAVA FILTER....

What is the price of each liter of kerosene?



[Fill in the Blank]

BEFORE PURCHASING A NAZAVA FILTER....

How much time did you spend to obtain fuel each week?

- 0-30 minutes
- 30 minutes - 1 hour
- 1-2 hours
- 2-3 hours
- More

BEFORE PURCHASING A NAZAVA FILTER....

How many kettles of water did you boil per day?

- 0 kettles
- 1-2 kettles
- 3-4 kettles
- 5-6 kettles
- 7-8 kettles
- 9-10 kettles
- More than 10 kettles

BEFORE PURCHASING A NAZAVA FILTER....

About how many liters of water does your kettle hold?

[Fill in the Blank]

BEFORE PURCHASING A NAZAVA FILTER....

About how long does it take for you to boil a kettle of water?

- 0 - 5 minutes
- 5 - 10 minutes
- 10 - 15 minutes
- 15 - 20 minutes
- 20 - 25 minutes
- 25 - 30 minutes
- More than 30 minutes

BEFORE PURCHASING A NAZAVA FILTER....

When boiling water, where did you get your water from?

- River
- Piped Water
- Well



- Rain water
- Mountain water
- Other

BEFORE PURCHASING A NAZAVA FILTER....

How long did it take you to get to that water source?

- 0-5 minutes
- 5-20 minutes
- 20-45 minutes
- 45-60 minutes
- 1-2 hours
- More

BEFORE PURCHASING A NAZAVA FILTER....

How many times per week did you go to that water source? (If you have your own water source, please enter 0)

[Fill in the Blank]

BEFORE PURCHASING A NAZAVA FILTER....

Did you buy bottles of water to have clean drinking water?

- Yes, branded gallons
- Yes, refillable gallons
- No

BEFORE PURCHASING A NAZAVA FILTER....

How many gallons of bottled water did you purchase per week?

[Fill in the Blank]

BEFORE PURCHASING A NAZAVA FILTER....

About how much did each gallon cost? (in Rupiahs):

[Fill in the Blank]

BEFORE PURCHASING A NAZAVA FILTER....

On average, how much time did it take to purchase bottled water each week?

- 0-30 minutes
- 30 minutes - 1 hour
- 1-2 hours
- 2-3 hours
- More



BEFORE PURCHASING A NAZAVA FILTER....

How often did you or your family experience illnesses related to water sanitation (diarrhea etc.)?

- Often, multiple times each month
- Frequently, multiple times per year
- Sometimes, once or twice per year
- Infrequently, once every couple of years
- Never

How much did your first Nazava filter cost? (in Rupiahs):

[Fill in the Blank]

How long have you had your Nazava filter?

- Less than 1 year
- 1 year
- 2 years
- 3 years
- 4 years
- 5+ years

Have you ever gotten your Nazava filter replaced?

- Yes, multiple times
- Yes, once
- Never

The following questions will be about your activities AFTER your family purchased a Nazava filter.

AFTER PURCHASING A NAZAVA FILTER....

How do you boil your drinking water?

- I boil by burning wood
- I boil by burning fuel
- I boil by burning wood and fuel
- I do not boil water

AFTER PURCHASING A NAZAVA FILTER....

How many bundles of wood do you burn per week?

[Fill in the Blank]



AFTER PURCHASING A NAZAVA FILTER....

How many 3 kg canisters of fuel do you use per week?

- 0
- 1 canister
- 2 canisters
- 3 canisters
- 4 canisters
- 5 canisters or more

AFTER PURCHASING A NAZAVA FILTER....

How many 12 kg canisters of fuel do you use per week?

- 0
- 1 canister
- 2 canisters
- 3 canisters
- 4 canisters
- 5 canisters or more

AFTER PURCHASING A NAZAVA FILTER....

How many liters of kerosene do you buy per week? (If you do not use kerosene, please enter 0)

[Fill in the Blank]

AFTER PURCHASING A NAZAVA FILTER....

How many kettles of water do you boil per day?

- 0 kettles
- 1-2 kettles
- 3-4 kettles
- 5-6 kettles
- 7-8 kettles
- 9-10 kettles
- More than 10 kettles

AFTER PURCHASING A NAZAVA FILTER....

Does your family gather water (for boiling/filtering) from the same source you listed before?

- Yes
- No

AFTER PURCHASING A NAZAVA FILTER....

If not, what kind of water source are you using now?



- River
- Piped Water
- Well
- Rain water
- Mountain water
- Other

AFTER PURCHASING A NAZAVA FILTER....

How long does it take you to get to the source of water you use for boiling/filtering?

- 0-5 minutes
- 5-20 minutes
- 20-45 minutes
- 45-60 minutes
- 1-2 hours
- More

AFTER PURCHASING A NAZAVA FILTER....

How many times per week do you go to that water source? (If you have your own water source, please enter 0)

[Fill in the Blank]

AFTER PURCHASING A NAZAVA FILTER....

Do you buy bottles of water to have clean drinking water?

- Yes, branded gallons
- Yes, refillable gallons
- No

AFTER PURCHASING A NAZAVA FILTER....

How many gallons of bottled water do you purchase per week?

(Fill in the Blank)

AFTER PURCHASING A NAZAVA FILTER....

On average, how much time does it take to purchase bottled water each week?

- 0-30 minutes
- 30 minutes - 1 hour
- 1-2 hours
- 2-3 hours
- More



AFTER PURCHASING A NAZAVA FILTER....

How often does you or your family experience illnesses related to water sanitation (diarrhea etc.)?

- Often, multiple times each month
- Frequently, multiple times per year
- Sometimes, once or twice per year
- Infrequently, once every couple of years
- Never

In your opinion, what is the best method to get clean drinking water

- Purchasing water bottles
- Boiling water by burning wood
- Boiling water by using a gas stove
- Nazava filter
- Different filter system
- No purification method
- Other

Why did you decide to buy a water filter? (May choose more than one)

- To save money
- To improve my family's health
- To save time in my daily life
- To reduce the amount of wood and/or fuel I use
- Other

How satisfied with you with the water filtration method?

- Very satisfied
- Satisfied
- Neither satisfied nor unsatisfied
- Unsatisfied
- Very unsatisfied

If possible, please list three words that you think of when talking about a Nazava water filter?

[Fill in the Blank]

You have completed the survey! Thank you so much for you time and honesty. We know your responses will be very helpful for our research!



User Survey (Indonesian translation):

Halo, perkenalkan nama kami adalah Katie Waddell dan Meghan Carlsen. Kami datang dari Santa Clara University di Amerika Serikat. Survei ini berisi tentang beberapa pertanyaan mengenai penggunaan air dalam keluarga Anda, dan membutuhkan waktu sekitar 20 menit untuk menyelesaikannya. Jika suatu saat ingin menghentikan survei atau melewatkan pertanyaannya, jangan ragu untuk melakukannya. Partisipasi Anda bersifat sukarela dan tidak akan ada imbalan untuk berpartisipasi atau biaya untuk menarik partisipasi Anda.

Selain itu, perlu diketahui bahwa Anda dapat menanggapi setiap pertanyaan dengan jujur, tidak peduli seberapa positif atau negatif jawaban Anda. Semua informasi yang diberikan akan menjadi anonim, tetapi hasil keseluruhan akan dipublikasikan di universitas kami di Amerika Serikat, serta disampaikan kepada perusahaan Nazava dan para pemangku kepentingan. Kami tidak bekerja sama atau berasal dari Nazava, tapi kami bekerja untuk Santa Clara University yang bermitra dengan Nazava. Kami menyambut semua umpan balik, tapi tolong merespon kepada apa yang Anda rasa nyaman untuk menjawab.

Terima kasih atas partisipasi Anda. Kami sangat menghargai waktu dan tanggapan Anda untuk kelanjutan pekerjaan kami.

Apakah Anda mengerti tujuan dari survei ini dan mau ikut serta berpartisipasi ?

- Iya
- Tidak

Jika "Tidak"

Jika Anda bersedia silahkan isi survei tersebut, dan apabila Anda tidak bersedia mengisi survei tersebut, Anda bisa mengembalikan ponsel tersebut kepada kami. Terima kasih atas waktu Anda !

Jika "Iya"

Berapa banyak orang yang ada dalam rumah tangga Anda ?

[Fill in the Blank]

Apa ukuran saringan air Nazava Anda ?

- 6 liter, Nazava Bening Small
- 13,5 liter, Nazava Bening 1
- 13,5 liter, Nazava Bening 2
- 16 liter, Nazava Eksklusif
- 18 liter, Nazava Trendy Dispenser



- 27,5 liter, Nazava Bening XL

Tolong masukan nomor serial saringan air Nazava Anda (jika Anda tidak tahu, tolong lewat pertanyaan ini) :

[Fill in the Blank]

Seberapa sering Anda mengisi saringan air Nazava Anda dalam satu minggu?

[Fill in the Blank]

Pertanyaan berikut ini berkaitan dengan kegiatan yang Anda lakukan sebelum membeli penyaring air Nazava.

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Bagaimana Anda memasak air Anda ?

- Saya memasak air menggunakan kayu bakar
- Saya memasak air menggunakan bahan bakar If this response, jump to 26
- Saya memasak air menggunakan kayu bakar dan bahan bakar If this response, jump to 22
- Saya tidak memasak air If this response, jump to 44

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Berapa banyak ikat kayu yang Anda bakar dalam seminggu ?

[Fill in the Blank]

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Berapakah berat perkiraan masing-masing ikat kayu ? (dalam kilogram):

[Fill in the Blank]

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Berapa banyak waktu yang Anda habiskan untuk memperoleh kayu dalam seminggu ?

- 0 - 30 menit
- 30 menit - 1 jam
- 1 - 2 jam
- 2 - 3 jam
- Lainnya

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Berapa harga dari setiap ikat kayu ? (dalam rupiah) (jika Anda tidak membeli kayu, silahkan isi dengan 0) :

[Fill in the Blank]



SEBELUM MEMBELI PENYARING AIR NAZAVA...

Apa ukuran tabung gas yang biasa Anda beli ? (Jika Anda tidak menggunakan gas, pilih lainnya dan silahkan isi pertanyaan berikutnya) :

- 3 kg
- 12 kg
- 3 kg dan 12 kg
- Lainnya

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Berapa banyak tabung gas ukuran 3 kg yang Anda gunakan dalam seminggu?

- 0
- 1 tabung
- 2 tabung
- 3 tabung
- 4 tabung
- 5 tabung atau lebih

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Berapakah harga tabung gas ukuran 3 kg ? (dalam rupiah) :

[Fill in the Blank]

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Berapa banyak tabung gas ukuran 12 kg yang Anda gunakan dalam seminggu?

- 0
- 1 tabung
- 2 tabung
- 3 tabung
- 4 tabung
- 5 tabung atau lebih

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Berapakah harga tabung gas ukuran 12 kg ? (dalam rupiah) :

[Fill in the Blank]

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Berapa liter minyak tanah yang Anda beli dalam seminggu ?

[Fill in the Blank]



SEBELUM MEMBELI PENYARING AIR NAZAVA...

Berapa harga setiap liter minyak tanah ? (dalam rupiah) :

[Fill in the Blank]

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Berapa banyak waktu yang Anda habiskan untuk memperoleh bahan bakar dalam seminggu ?

- 0 - 30 menit
- 30 menit - 1 jam
- 1 - 2 jam
- 2 - 3 jam
- Lainnya

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Berapa banyak ceret air yang Anda masak per hari ?

- 0 ceret
- 1-2 ceret
- 3-4 ceret
- 5-6 ceret
- 7-8 ceret
- 9-10 ceret
- Lebih dari 10 ceret

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Berapa liter air yang dapat ditampung oleh ceret Anda ?

[Fill in the Blank]

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Berapa lama waktu yang Anda butuhkan untuk memasak air menggunakan ceret ?

- 0 - 5 menit
- 5 - 10 menit
- 10 - 15 menit
- 15 - 20 menit
- 20 - 25 menit
- 25 - 30 menit
- Lebih dari 30 menit

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Ketika Anda memasak air, darimana Anda mendapatkan air tersebut ?

- Sungai



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- Air tanah/Air sumur
- Air ledeng/Air PAM
- Air hujan
- Air jerigen
- Lainnya

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Berapa lama waktu yang Anda butuhkan untuk mendapatkan sumber air tersebut ?

- 0 - 5 menit
- 5 - 20 menit
- 20 - 45 menit
- 45 - 60 menit
- 1 - 2 jam
- Lainnya

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Berapa kali dalam seminggu, Anda pergi ke sumber air tersebut ?

(Jika Anda memiliki sumber air sendiri, silahkan pilih 0)

[Fill in the Blank]

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Apakah Anda membeli air botol galon untuk mendapatkan air minum yang bersih ?

- Iya, Air Galon Ber-merek
- Iya, Air Galon isi ulang
- Tidak, Saya tidak membeli air

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Berapa banyak air galon yang Anda beli dalam seminggu ?

[Fill in the Blank]

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Berapa harga dari setiap galon yang Anda beli ? (dalam rupiah):

[Fill in the Blank]

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Rata-rata, berapa banyak waktu yang Anda butuhkan untuk membeli setiap air galon tersebut dalam seminggu ?

- 0 - 30 menit
- 30 menit - 1 jam



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- 1 - 2 jam
- 2 - 3 jam
- Lainnya

SEBELUM MEMBELI PENYARING AIR NAZAVA...

Seberapa sering Anda atau keluarga Anda terkena penyakit yang berhubungan dengan sanitasi air (seperti diare, dan lain-lain) ?

- Sering, beberapa kali dalam sebulan
- Jarang, beberapa kali dalam setahun
- Kadang-kadang, satu atau dua kali dalam setahun
- Sangat jarang, satu kali dalam beberapa tahun
- Tidak pernah

Berapakah harga saringan air Nazava Anda saat pertama kali beli ? (dalam rupiah):

[Fill in the Blank]

Sudah berapa lama Anda memiliki saringan air Nazava ?

- Kurang dari 1 tahun
- 1 tahun
- 2 tahun
- 3 tahun
- 4 tahun
- Lebih dari 5 tahun

Apakah saringan air Nazava Anda pernah diganti ?

- Iya, beberapa kali
- Iya, satu kali
- Tidak pernah

Pertanyaan berikut ini berkaitan dengan kegiatan yang Anda lakukan setelah keluarga Anda membeli penyaring air Nazava.

SETELAH MEMBELI PENYARING AIR NAZAVA...

Bagaimana cara Anda memasak air ? (Jika Anda memasak air dalam jumlah yang sedikit untuk mendapatkan air panas, silahkan pilih metode yang Anda gunakan) :

- Saya memasak air dengan menggunakan kayu bakar
- Saya memasak air dengan menggunakan bahan bakar
- Saya memasak air dengan menggunakan kayu bakar dan bahan bakar
- Saya tidak memasak air



SETELAH MEMBELI PENYARING AIR NAZAVA...

Berapa banyak ikat kayu yang Anda bakar dalam seminggu ?

SETELAH MEMBELI PENYARING AIR NAZAVA...

Berapa banyak tabung gas ukuran 3 kg yang Anda gunakan dalam seminggu ? (Jika Anda menggunakan bahan bakar selain gas, silahkan pilih lainnya)

- 0
- 1 tabung
- 2 tabung
- 3 tabung
- 4 tabung
- 5 tabung atau lebih
- Lainnya

SETELAH MEMBELI PENYARING AIR NAZAVA...

Berapa banyak tabung gas ukuran 12 kg yang Anda gunakan dalam seminggu ? (Jika Anda menggunakan bahan bakar selain gas, silahkan pilih lainnya)

- 0
- 1 tabung
- 2 tabung
- 3 tabung
- 4 tabung
- 5 tabung atau lebih
- Lainnya

SETELAH MEMBELI PENYARING AIR NAZAVA...

Berapa liter minyak tanah yang Anda beli dalam seminggu ?
(Jika Anda tidak menggunakan minyak tanah, silahkan pilih 0)
[Fill in the Blank]

SETELAH MEMBELI PENYARING AIR NAZAVA...

Berapa banyak ceret air yang Anda masak per hari ?

- 0 ceret
- 1-2 ceret
- 3-4 ceret
- 5-6 ceret
- 7-8 ceret
- 9-10 ceret



- Lebih dari 10 ceret

SETELAH MEMBELI PENYARING AIR NAZAVA...

Apakah keluarga Anda menggunakan air (untuk memasak/menyaring) dari sumber air yang sama dengan yang Anda sebutkan sebelumnya di atas ?

- Iya
- Tidak

SETELAH MEMBELI PENYARING AIR NAZAVA...

Jika tidak, apa jenis sumber air yang Anda gunakan sekarang ?

- Sungai
- Air tanah/Air sumur
- Air hujan
- Air ledeng/Air PAM
- Air jerigen
- Lainnya

SETELAH MEMBELI PENYARING AIR NAZAVA...

Berapa lama waktu yang Anda butuhkan untuk mendapatkan sumber air yang biasa Anda gunakan untuk memasak/menyaring ?

- 0 - 5 menit
- 5 - 20 menit
- 20 - 45 menit
- 45 - 60 menit
- 1 - 2 jam
- Lainnya

SETELAH MEMBELI PENYARING AIR NAZAVA...

Berapa kali dalam seminggu Anda pergi ke sumber air tersebut ?
(Jika Anda memiliki sumber air sendiri, silahkan pilih 0)

[Fill in the Blank]

SETELAH MEMBELI PENYARING AIR NAZAVA...

Apakah Anda membeli air botol galon untuk air minum ?

- Iya, Air Galon Ber-merek
- Iya, Air Galon isi ulang
- Tidak, Saya tidak membeli air If this response, jump to 73



SETELAH MEMBELI PENYARING AIR NAZAVA...

Berapa banyak air galon yang Anda beli dalam seminggu ?

[Fill in the Blank]

SETELAH MEMBELI PENYARING AIR NAZAVA...

Rata-rata, berapa banyak waktu yang Anda butuhkan untuk membeli setiap air galon tersebut dalam seminggu ?

- 0 - 30 menit
- 30 menit - 1 jam
- 1 - 2 jam
- 2 - 3 jam
- Lainnya

SETELAH MEMBELI PENYARING AIR NAZAVA...

Seberapa sering Anda atau keluarga Anda terkena penyakit yang berhubungan dengan sanitasi air (seperti diare, dan lain-lain) ?

- Sering, beberapa kali dalam sebulan
- Jarang, beberapa kali dalam setahun
- Kadang-kadang, satu atau dua kali dalam setahun
- Sangat jarang, satu kali dalam beberapa tahun
- Tidak pernah

Menurut Anda, Apa metode terbaik untuk mendapatkan air minum yang bersih ?

- Membeli botol air
- Memasak air dengan kayu bakar
- Memasak air dengan kompor gas
- Saringan air Nazava
- Sistem penyaringan yang berbeda
- Tidak ada metode pemurnian
- Lainnya

Mengapa Anda memutuskan untuk membeli saringan air ? (Boleh pilih lebih dari satu)

- Untuk menghemat uang
- Untuk meningkatkan kesehatan keluarga Saya
- Untuk menghemat waktu dalam kehidupan sehari-hari
- Untuk mengurangi jumlah kayu atau bahan bakar yang saya gunakan
- Lainnya



Seberapa puaskah Anda dengan metode penyaringan air ?

- Sangat Puas
- Puas
- Cukup Puas
- Tidak Puas
- Sangat Tidak Puas

Jika ada, sebutkan 3 kata yang terpikir oleh Anda ketika berbicara tentang saringan air Nazava?
[Fill in the Blank]

Anda telah menyelesaikan survei yang kami berikan, Terima kasih atas waktu dan kejujuran yang Anda berikan atas jawaban tersebut. Respon Anda sangat membantu untuk penelitian kami.

Nonuser Survey (English translation):

Hello, our names are Katie Waddell and Meghan Carlsen. We come from Santa Clara University in the United States of America. This survey will ask questions about your family's water usage and should take about 20 minutes to complete. If at any time you wish to discontinue the survey or skip a question please feel free to do so. Your participation is completely voluntary and there will not be any rewards for participating or costs for withdrawing.

In addition, please know that you can respond to each question completely honestly, no matter how positive or negative. All information provided will be anonymous but the overall results will be published at our university in the United States, as well as presented to the Nazava company and its stakeholders. We do not work at or come from Nazava, but instead we work for Santa Clara University, which is partnered with Nazava. We welcome all feedback, but please respond only to what you are comfortable with answering. Thank you again! We very much appreciate your time and responses as we continue with our work.

Do you understand the purpose of this survey and feel willing to participate?

- Yes
- No

If "No"

Please hand the phone back to the researchers Katie and Meghan. Thank you for your time!



If "Yes"

How many people are in your family?

[Fill in the Blank]

How do you boil your drinking water?

- I boil by burning wood
- I boil by burning fuel
- I boil by burning wood and/or fuel
- I do not boil water

How many bundles of wood do you burn per week?

[Fill in the Blank]

What is the approximate weight of each bundle? (in kilograms):

[Fill in the Blank]

How much does each bundle cost? (in rupiah) (if you do not buy wood, please fill in 0):

[Fill in the Blank]

How much time do you spend getting wood per week?

- 0 - 30 minutes
- 30 minutes - 1 hour
- 1 - 2 hours
- 2 - 3 hours
- More

What size fuel canister do you purchase? (If you do not use gas, please select other and move on to the next question)

- 3 kg
- 12 kg
- 3 kg and 12 kg
- Other

How many 3 kg canisters of fuel do you use per week?

- 0
- 1 canister
- 2 canisters
- 3 canisters
- 4 canisters



- 5 canisters or more

How much does each 3 kg canister of fuel cost? (in Rupiahs):

[Fill in the Blank]

How many 12 kg canisters of fuel do you use per week?

- 0
- 1 canister
- 2 canisters
- 3 canisters
- 4 canisters
- 5 canisters or more

How much does each 12 kg canister of fuel cost? (in Rupiahs):

[Fill in the Blank]

How many liters of kerosene do you buy each week?

[Fill in the Blank]

What is the price of each liter of kerosene?

[Fill in the Blank]

How much time do you spend to obtain fuel each week?

- 0-30 minutes
- 30 minutes - 1 hour
- 1-2 hours
- 2-3 hours
- More

How many kettles of water do you boil per day?

- 0 kettles
- 1-2 kettles
- 3-4 kettles
- 5-6 kettles
- 7-8 kettles
- 9-10 kettles
- More than 10 kettles

About how many liters of water does your kettle hold?



[Fill in the Blank]

About how long does it take for you to boil a kettle of water?

- 0 - 5 minutes
- 5 - 10 minutes
- 10 - 15 minutes
- 15 - 20 minutes
- 20 - 25 minutes
- 25 - 30 minutes
- More than 30 minutes

When boiling water, where do you get your water from?

- River
- Piped Water
- Well
- Rain water
- Mountain water
- Other

How long does it take you to get to that water source?

- 0-5 minutes
- 5-20 minutes
- 20-45 minutes
- 45-60 minutes
- 1-2 hours
- More

How many times per week do you go to that water source? (If you have your own water source, please enter 0)

[Fill in the Blank]

Do you buy bottles of water to have clean drinking water?

- Yes, branded gallons
- Yes, refillable gallons
- No

How many gallons of bottled water do you purchase per week?

[Fill in the Blank]



About how much does each gallon cost? (in Rupiahs):

[Fill in the Blank]

On average, how much time does it take to purchase bottled water each week?

- 0-30 minutes
- 30 minutes - 1 hour
- 1-2 hours
- 2-3 hours
- More

How often do you or your family experience illnesses related to water sanitation (diarrhea etc.)?

- Often, multiple times each month
- Frequently, multiple times per year
- Sometimes, once or twice per year
- Infrequently, once every couple of years
- Never

How satisfied are you with your water purification method?

- Very satisfied
- Satisfied
- Neither satisfied nor unsatisfied
- Unsatisfied
- Very unsatisfied

Do you want to change your water purification method?

- Yes
- No
- Maybe

If possible, please list three words that you think of when talking about a Nazava water filter?

[Fill in the Blank]

You have completed the survey! Thank you so much for your time and honesty. We know your responses will be very helpful for our research!

Nonuser Survey (Indonesian translation):



Halo, perkenalkan nama kami adalah Katie Waddell dan Meghan Carlsen. Kami datang dari Santa Clara University di Amerika Serikat. Survei ini berisi tentang beberapa pertanyaan mengenai penggunaan air dalam keluarga Anda, dan membutuhkan waktu sekitar 20 menit untuk menyelesaikannya. Jika suatu saat ingin menghentikan survei atau melewatkan pertanyaannya, jangan ragu untuk melakukannya. Partisipasi Anda bersifat sukarela dan tidak akan ada imbalan untuk berpartisipasi atau biaya untuk menarik partisipasi Anda.

Selain itu, perlu diketahui bahwa Anda dapat menanggapi setiap pertanyaan dengan jujur, tidak peduli seberapa positif atau negatif jawaban Anda. Semua informasi yang diberikan akan menjadi anonim, tetapi hasil keseluruhan akan dipublikasikan di universitas kami di Amerika Serikat, serta disampaikan kepada perusahaan Nazava dan para pemangku kepentingan. Kami tidak bekerja sama atau berasal dari Nazava, tapi kami bekerja untuk Santa Clara University yang bermitra dengan Nazava. Kami menyambut semua umpan balik, tapi tolong merespon kepada apa yang Anda rasa nyaman untuk menjawab.

Terima kasih atas partisipasi Anda. Kami sangat menghargai waktu dan tanggapan Anda untuk kelanjutan pekerjaan kami.

Apakah Anda mengerti tujuan dari survei ini dan mau ikut serta berpartisipasi ?

- Iya
- Tidak

Jika "Tidak"

Jika Anda bersedia silahkan isi survei tersebut, dan apabila Anda tidak bersedia mengisi survei tersebut, Anda bisa mengembalikan ponsel tersebut kepada kami. Terima kasih atas waktu Anda !

Jika "Iya"

Berapa banyak orang yang ada dalam rumah tangga Anda ?

[Fill in the Blank]

Bagaimana cara Anda memasak air ?

- Saya memasak air dengan menggunakan kayu bakar
- Saya memasak air dengan menggunakan bahan bakar
- Saya memasak air dengan menggunakan kayu bakar dan bahan bakar
- Saya tidak memasak air

Berapa banyak ikat kayu yang Anda bakar dalam seminggu ?

[Fill in the Blank]



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Berapa perkiraan berat dari masing-masing ikat kayu ? (dalam kilogram)

[Fill in the Blank]

Berapa harga dari setiap ikat kayu ? (dalam rupiah) (jika Anda tidak membeli kayu, silahkan isi dengan 0) :

[Fill in the Blank]

Berapa banyak waktu yang Anda habiskan untuk memperoleh kayu dalam seminggu ?

- 0 - 30 menit
- 30 menit - 1 jam
- 1 - 2 jam
- 2 - 3 jam
- Lainnya

Apa ukuran tabung gas yang biasa Anda beli ? (Jika Anda tidak menggunakan gas, pilih lainnya dan silahkan isi pertanyaan berikutnya) :

- 3 kg
- 12 kg
- Keduanya, 3 kg dan 12 kg
- Lainnya

Berapa banyak tabung gas ukuran 3 kg yang Anda gunakan dalam seminggu?

- 0 tabung
- 1 tabung
- 2 tabung
- 3 tabung
- 4 tabung
- 5 tabung atau lebih

Berapakah harga tabung gas ukuran 3 kg ? (dalam rupiah) :

[Fill in the Blank]

Berapa banyak tabung gas ukuran 12 kg yang Anda gunakan dalam seminggu?

- 0 tabung
- 1 tabung
- 2 tabung
- 3 tabung
- 4 tabung
- 5 tabung atau lebih



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Berapakah harga tabung gas ukuran 12 kg ? (dalam rupiah) :
[Fill in the Blank]

Berapa liter minyak tanah yang Anda beli dalam seminggu ?
[Fill in the Blank]

Berapa harga setiap liter minyak tanah ? (dalam rupiah):
[Fill in the Blank]

Berapa lama waktu yang Anda habiskan untuk memperoleh bahan bakar dalam seminggu ?

- 0 - 30 menit
- 30 menit - 1 jam
- 1 - 2 jam
- 2 -3 jam
- Lainnya

Berapa banyak ceret air yang Anda masak per hari ?

- 0 ceret
- 1-2 ceret
- 3-4 ceret
- 5-6 ceret
- 7-8 ceret
- 9-10 ceret
- Lebih dari 10 ceret

Berapa liter air yang dapat ditampung oleh ceret Anda ?
[Fill in the Blank]

Ketika Anda memasak air, darimana Anda mendapatkan air tersebut ?

- Sungai
- Air tanah/ Air sumur
- Air ledeng/Air PAM
- Air hujan
- Air jerigen
- Lainnya

Berapa lama waktu yang Anda butuhkan untuk mendapatkan sumber air tersebut ?

- 0-5 menit



- 5-20 menit
- 45-60 menit
- 20-45 menit
- 1-2 jam
- Lainnya

Berapa kali dalam seminggu, Anda pergi ke sumber air tersebut ?
(Jika Anda memiliki sumber air sendiri, silahkan pilih 0)

[Fill in the Blank]

Apakah Anda membeli air botol galon untuk air minum ?

- Iya, Air Galon Ber-merek
- Iya, Air Galon isi ulang
- Tidak, Saya tidak membeli air

Berapa banyak air galon yang Anda beli dalam seminggu ?

[Fill in the Blank]

Berapa banyak uang yang telah Anda habiskan untuk membeli air botol galon dalam seminggu ? (dalam rupiah):

[Fill in the Blank]

Rata-rata, Berapa banyak waktu yang Anda habiskan untuk membeli air botol galon setiap minggu ?

- 0 - 30 menit
- 30 menit - 1 jam
- 1 - 2 jam
- 2 - 3 jam
- Lainnya

Seberapa sering Anda atau keluarga Anda terkena penyakit yang berhubungan dengan sanitasi air (seperti diare, dan lain-lain) ?

- Sering, beberapa kali dalam sebulan
- Jarang, beberapa kali dalam setahun
- Kadang-kadang, satu atau dua kali dalam setahun
- Sangat jarang, satu kali dalam beberapa tahun
- Tidak pernah

Seberapa puaskah Anda dengan metode penyaringan air Anda ?



- Sangat Puas
- Puas
- Cukup Puas
- Tidak Puas
- Sangat Tidak Puas

Apakah Anda mau mengganti metode penyaringan air Anda ?

- Iya
- Tidak
- Mungkin

Jika ada, sebutkan 3 kata yang terpikir oleh Anda ketika berbicara tentang saringan air Nazava ?

[Fill in the Blank]

Anda telah menyelesaikan survei yang kami berikan, Terima kasih atas waktu dan kejujuran yang Anda berikan atas jawaban tersebut. Respon Anda sangat membantu untuk penelitian kami



Endnotes

- ¹ “People and Society: Indonesia.” *The World Factbook*. Central Intelligence Agency. 2015-2016. Web. 11 Oct. 2016.
- “Improved Water Source, Urban (% of Population with Access).” *World Development Indicators Database*. Data Planet: Statistical Datasets. 1 Jan. 2015. Web. 11 Oct. 2016.
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- ² “Nazava Water Filters.” Nazava.com. Web. 15 Nov. 2016.
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- ⁴ “Five Years of Impact 2010-2015: Our Story. Our Progress. Our Aspiration.” *Global Alliance for Clean Cookstoves*. 2015. 15 Nov. 2016.
Simon, Gregory L., Rob Bailis, Jill Baumgartner, Jasmine Hyman, and Arthur Laurent. “Current debates and future research needs in the clean cookstove sector.” *Energy for Sustainable Development 20* (2014): 49-57. Web. 15 Nov. 2016.
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- ⁶ “Improved Water Source, Rural (% of Rural Population with Access).” *World Development Indicators Database*. Data Planet: Statistical Datasets. 1 Jan. 2015. Web. 11 Oct. 2016.
- ⁷ “People and Society: Indonesia.” *The World Factbook*. Central Intelligence Agency. 2015-2016. Web. 11 Oct. 2016.
- ⁸ Gagliardone, Laura. “Women’s Allocation of Time in India, Indonesia, and China.” *The Closing Circle*. 30 Nov. 2015. Pp. 21-29
- ⁹ “Poverty rate (in % of population).” *Indonesia Database for Policy and Economic Research*. The World Bank. 2013. Web. 9 Nov. 2016
- ¹⁰ “Poverty rate (in % of population).” *Indonesia Database for Policy and Economic Research*. The World Bank. 2013. Web. 9 Nov. 2016
- ¹¹ Banerjee, Abhijit V., and Esther Duflo. “Chapter 1: Think Again, Again.” *Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty*. New York: PublicAffairs, 2011. Print. In this chapter, the need for research into the lives of the poor is examined and the theory of a poverty trap is evaluated. Furthermore, it makes a note that small incremental progress toward huge social issues can be made through a deep awareness of the life reality of those in poverty.

