# Motivating Sustainable Lifestyle Habits for Costa Rica


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An Interactive Qualifying Project Report

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# Abstract

Costa Rica has been known to overcome sustainability challenges throughout the years with support, inspiration, and engagement from community members to find new ways to decrease their carbon footprint. The organization Quantum Leap is looking to motivate sustainable lifestyle habits for the communities in San José, Costa Rica. Quantum Leap sponsors Change Clubs, a new organization looking to create community groups that collaborate to improve their sustainability habits. We worked with the Quantum Leap team and were able to help modify the content of the Change Club app for Costa Rican and tropical culture. More specifically, we were able to verify the four climate solution topics we focused on: energy, diet, mobility, and waste with our field studies. In addition, we provided psychological recommendations on group dynamics through research and doing field studies.

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# Chapter I: Introduction

The gathering of various communities to collaborate in making their lifestyles more sustainable and climate friendly can present as a difficult task. However, unlike other areas of the world, Costa Rica has proven that this challenge can be overcome with support, inspiration, and engagement from community members to find new ways to decrease their carbon footprint. Costa Rica has aligned its national priorities with global climate action. The government ensures that climate change strategies are at the top of their agenda to commit to eventually becoming a carbon-neutral country. Sustainability can be done through everyday activities across all kinds of topics toward the goal of being more eco-friendly. One of the largest challenges in moving towards a sustainability lifestyle include higher costs, inconvenience, and lack of available options.

The organization Quantum Leap is looking to motivate sustainable lifestyle habits for the communities in Costa Rica. Quantum Leap sponsors Change Clubs, a new organization looking to create community groups that collaborate to decrease their individual carbon footprints. To help make living a sustainable lifestyle easier, the organization Change Clubs is developing an app to promote more climate-friendly lifestyles. The app is mainly focused on North American and European climate regions and most of the resources and suggestions are unsuitable for Costa Rican climate. Therefore, we needed to verify that the sustainable solutions provided by Quantum Leap are applicable towards the tropical climate in Costa Rica and Change Clubs. The solutions we have verified were not only directed toward the climate in Costa Rica, but also the country's particular habits of transportation, culture, infrastructure, and community-based dynamics. In addition, the sustainability changes need to be holistic with long-lasting solutions that will remain in effect after the duration of our project. Change Clubs would like to engage people from all around the world, so adapting the app to fit diverse cultures and regions proves to be critical.

With the support of Quantum Leap, our goal was to help modify the content of the Change Club app for Costa Rican and tropical culture as well as to research the psychology of group motivation by doing field studies and providing recommendations from our results. To achieve these goals, each of the following objectives were met: (1) To provide methods to keep groups engaged, motivated, and build up the Change Clubs initiative. (2) To verify a set of tropical climate solutions and provide recommendations to modify the content of the Change Clubs app (3) Identify any other contributing factors and obstacles to climate action.

# Chapter II: Background

In this section we discuss the background context for our project, the organizations we are collaborating with, and the country we are researching in. We discuss the current effects of global warming to establish the problem Quantum Leap and Change Clubs is addressing. Costa Rica is currently addressing climate issues through enacting environmental policies towards sustainability. In the past few decades, Costa Rican economics have been focused on climate change action. In addition, we reviewed Costa Rican culture and community values to obtain a grasp of the community we were working with. We provided detailed information on our sponsors for our audience to gain an understanding of who we were working with. Lastly, we included some initial research on the psychological barriers to climate action and psychology of group motivation to provide recommendations for the starting Change Clubs. Overall, the goal of the background was to provide insight on our project and initial research taken to help Quantum Leap obtain their objectives.

## 2.1 Effects of Global Warming

Despite many years of global discussions about sustainable development, climate change, and biodiversity loss, minimal progress has been made. In fact, most indicators of sustainability demonstrate that climate issues are continuously increasing. Today global warming has caused an increase in many natural disasters including recurrent category four and five hurricanes, heavier rainfalls, and floods. The global temperature rises which causes the temperature of the oceans to rise creating more dangerous storms as they can pull more heat and water vapor (Center for Climate and Energy Solutions, 2018). Stopping climate change is one of the hardest challenges faced by humanity since population rates keep growing, and greenhouse gas emissions continue to climb each year. The biggest threat to Costa Rica due to global warming is the rising levels of water in the Caribbean Sea and the Pacific Ocean. Right now, the waters are rising at a rate of 0.12 to 0.14 inches per year, which is roughly twice as fast as the average rate (United States Environmental Protection Agency, 2016). The rising sea level is important to note because Costa Rica has some low-lying coast, which means as the water rises and temperatures change, storm surges are becoming not only larger but also more powerful. The increase in more powerful storms leads to increases in coastal erosion, disruption of fishing, saltwater floods in agricultural lands, and contamination of water sources (World Bank Climate Change Knowledge Portal, 2021). Not only does this hurt communities, but it also impacts the ecosystems around the particular community that was affected. In efforts to try and salvage buildings, climate-proofing as well as housing design changes have been more common amongst houses on the outskirts where the cyclones would hit the hardest (World Bank Climate Change Knowledge Portal, 2021). As well, the rising temperatures in the waters have disrupted fishing patterns which Costa Ricans depend on for food

and income. The rising global threat of climate change influences Costa Ricans to adapt their lifestyles toward a more sustainable and environmentally friendly future.

## 2.2 Sustainability

Costa Rica is the third-smallest country in Central America with a land area of 51,100 $Km^2$, nevertheless it accounts for about 6 percent of the world's biodiversity which spans many ecosystems and species (Embajada de Costa Rica en Washington DC, n.d.). According to the United Nations, Costa Rica is committed to becoming a carbon-neutral country by preparing a climate change strategy, hoping to contribute to the current climate change issue and eventually be a global example for the world to follow. Such an example could show the world what needs to be done to combat this problem. Costa Rica believes that a carbon-neutral economy while maintaining a stable and competitive economy is possible, therefore Costa Rica has started a plan that includes all economic sectors, academic institutions, and even government bodies (Mora, 2007). Costa Rica is one of the few countries that are environmentally conscious in many aspects. The geographical advantage in Costa Rica allows it to be able to use many different types of renewable energy. They have many rivers, volcanoes, and plains which allow them to use different types of renewable energy. They take advantage of this and use hydropower for 72% of their energy, 14.9% from geothermal sources, 12% from wind, and 0.54% from biomass and solar panels (Zúñiga, 2020). This makes them run on approximately 100% renewable power. Additionally, in order to get the funds for these eco-friendly projects, they have turned ecotourism into their leading economic industry and utilize that to keep biodiversity high. By making ecotourism their number one industry based around biodiversity and the environment, it is easy to recycle the money and put it back into other projects. For example, because of ecotourism the country can afford to make more than 25% of the country's land into conservation areas, ranking them number two in the world with the highest proportion of nationally owned nature reserves (Tenenbaum, 1995). Since the country is economically stable and environmentally friendly, they are able to turn down large economic opportunities such as oil-fired electric facilities and replace them with renewable facilities instead (Tenenbaum, 1995). In addition, Costa Rica implemented a carbon tax which was supported by the citizens (Tenenbaum, 1995). Costa Rican then turned the tax money into new economic opportunities that go into rebuilding roads and to small farmers to grow trees to offset greenhouse gases. The Costa Rican government is known for implementing a lot of environmental policies aiding in the decrease of carbon emissions.

## 2.3 Environmental Policies

Former Costa Rican President, José María Figueres, pledged a policy of sustainable development in 1992 through the preservation of national parks, tax measures, energy conservation, and education. A series of executive orders and legislations were signed in this

sustainable development. These orders include halting the operation of a Pacific Coast resort hotel and an environmentally damaging paper mill and port (Tenenbaum, 1995). In addition to this, the former President Figueres imposed a new carbon tax to preserve tropical forests in former cow pastures, allowing these areas to have protective measures. Costa Rica's conservation methods are being followed by other countries, which is important as they are becoming leaders in environmental conservation. The integration of environmental public policy into legislation along with support and participation from the government has proven to be successful for Costa Rica.

On April 25, 2022, the government of Costa Rica launched its first National Adaptation Plan (NAP) in declaring a strategic plan to strengthen the country's resilience to climate change over the next five years (*Costa Rica Launches Its First National Adaptation Plan*, 2022). This plan consists of six priority axes that range from knowledge management on the effects of climate change to investment and financial security for climate action. These actions will be carried out from 2022 to 2026 along with carrying out commitments from the Paris Agreement. The six priority axes from the NAP include: (1) education on the effects of climate change, climate services, and development of local and institutional capacities, (2) strengthening the resilience of human and natural systems through territorial, marine, and coastal planning, (3) management of biodiversity, ecosystems, watersheds, and marine-coastal spaces to ensure the adaptation/well-being of local communities, (4) climate-resilient utilities and infrastructure, (5) adapted and eco-competitive productive systems, and (6) investment and financial security for climate action (*Costa Rica Launches Its First National Adaptation Plan*, 2022). This plan is vital for Costa Rica, as it allows them to commit to action since the plan has to be followed in order for commitment and change. However, the country faces financial and governance challenges in each sector that will need reevaluation for solidifying the intended mitigation measures (Victor-Gallardo et al., 2022). With this, if one sector of the government does not follow the plan as such then climate action will be put on hold, and individual citizens will not gain trust in these policies.

To finalize environmental policies, an important part of Costa Rica's efforts in implementing environmental measures in public policy is shown with their involvement in the COP27 Conference. The COP conferences have been held every year since 1995, where countries come together to plan collective action for the climate in terms of biodiversity, closing the finance gap for nature-based solutions, and turning their commitments under the Paris Agreement into action (UNFCCC, 2019). The Paris Agreement is a legally binding international treaty on climate change. It was adopted by a total of 196 Parties at COP21 in Paris and was officially put into effect on November 4, 2016. Its overall goal is to limit global warming to below two degrees Celsius, and eventually to one and a half degrees Celsius (United Nations Framework Convention on Climate Change, 2016). The COP27 Conference took place in November of 2022 in Sharm el-Sheikh, Egypt, and was built on the outcomes of the COP26 conference which consisted of reducing greenhouse gas emissions, building resilience, and adapting to the inevitability of climate

change (United Nations, 2022a). Most importantly, it is following through with the commitments made to finance climate action in developing countries. There were nearly 200 countries involved as well as the private sector and nonprofits. The combined commitments between countries are an important factor in achieving climate goals under the Paris Agreement, and Costa Rica's involvement shows that their government is prioritizing climate change and is taking steps toward combating the issue through environmental policies. With their involvement in these conferences, Costa Rica is demonstrating their own commitment in taking steps towards applying the above development policies with Climate Change.

## 2.4 Economic Background

After the independence of Costa Rica, the government supports protecting the environment which is reflective through their economic decisions. Costa Rica and many other Central American countries started off under Spanish rule in the 16th century (Vogt, 2019). Costa Ricans would then become fully independent in 1838 (Vogt, 2019). However, after a military coup and a civil war, the constitution was revised, and the new government established, becoming more democratic. Around this time, the economy was dependent on several different exports such as coffee beans and bananas. Coffee production took off and the economy became very successful. With this success, modern infrastructure could be built; one of the most important implementations was the railroad built from the Central Valley to the Caribbean Coast of Puerto Limón in 1871 (Vogt, 2019). This railroad allowed more bananas to be exported, which boosted the economy. However, when the First World War began, coffee exports slowed down tremendously because Germany was Costa Rica's largest market. The lack of exports made the economy crash. To combat this, Costa Rica abolished their military in 1949 to move extra funding to the economic sectors that needed it (Vogt, 2019). Fortunately, since there was no military to spend money on, there was a surplus of funds that was spent on other developmental sectors of the economy such as education and healthcare (Vogt, 2019). At this point, the government realized more people were traveling internationally to Costa Rica to explore the nature and biodiversity of the country. Costa Rica then began focusing their efforts on preserving the environment and turning to eco-friendly options for electricity as well as the conservation of land (Vogt, 2019). Costa Rica's continuous preservation of the environment led to tourism becoming their number one economic industry which allows them to put money back into other governmental programs.

## 2.5 Culture and Community

Costa Rica's culture is rich and vast since it is influenced by a blend of Spanish, Indigenous and African cultures. The country's residents refer to themselves as "Ticos" due to their use of adding "-tico or -tica" to the end of words (Wallerstein, 2011). Costa Ricans are devoted to their family, and it is valued as one of the most important things to them. The family-oriented culture

brings together close-knit communities in Costa Rica. The people have a very friendly nature and consider their friends and others as family. The citizens refer to each other as brother, sister, aunt and uncle, regardless of being related.

The country has a lot of national pride in sports and Costa Rica's independence from Spanish rule. The most popular sport in Costa Rica is soccer, and their country has a lot of pride in their national team. On June 28, 1990, the members of the national team received awards as heroes for their outstanding participation in their first world cup (Chavarría Alvarado & Alvarado Quesada, 2022). The players are viewed as national heroes, which demonstrates their passion for the sport and the team. Not only do they take pride in their national sports, but Costa Rica also has pride for their country since their independence from Spain. Costa Ricans will proudly wave their flag in parades, even school children will participate in being taught by their teachers (Wallerstein, 2011). From a young age, the national pride mindset is instilled in the youth. The citizens have pride in the welfare of the country, which is evident by their preservation of the environment.

Due to colonization, Costa Rican culture was greatly influenced by Spanish culture. As a result, today about 80% of people are nearly of pure Spanish descent, while another 14% are mestizos and only 4% are Afro-Latinos (Murkland, 1952). The religion and food were heavily impacted by Spanish beliefs. In Costa Rica, religion is split up into four main religious groups (Murkland, 1952). A study conducted found that 47% of the population identified themselves as practicing Catholics, 25% consider themselves non practicing Catholics, 13% said they were evangelical Protestants, 10% percent reported that they did not have a religion (U.S. Department of State, 2005). In schools, Catholic religious instruction is provided; however, it is not mandatory. It is important to note the demographics and religions of the Costa Rican people to see how their values and economic opportunities influence their sustainability decision-making.

Costa Rican cuisine is a product of a cultural syncretism, contributed by the Indigenous, Afro-descendant and by the Spanish colonizers. In Afro-Caribbean Costa Rican food they commonly cook with coconut oil, the Panamanian pepper, nutmeg, malanga and ground grown vegetables in their cooking. The introduction of the iron cooker marks the foundations of today's traditional cuisine; however, clay ovens and the stoves continue to be used as the main source to cook food (Chavarría Alvarado & Alvarado Quesada, 2022). The Afro-Caribbean inspired dish "El Gallo Pinto" became the national dish of Costa Rica, composed of rice, beans, and eggs. "The combination of rice and beans was introduced in the nineteenth century by Afro-Caribbean migrant railroad workers" (Jiménez, 2012). The influence of Afro-Caribbean culture is found in many of Costa Ricans traditional dishes. Overall, the culture of Costa Rica will be respected and taken into consideration while working with the community.

## 2.6 Quantum Leap

Quantum Leap is a non-governmental organization (NGO) that is composed of members looking to promote innovative solutions to fight climate change. Through collaboration and interconnected efforts, Quantum Leap believes in a different approach, one that is holistic and multidisciplinary, but this approach requires innovative and constructive procedure to succeed. Quantum Leap is involved in public policy through the creation and facilitation of public and private alliances at the national, subnational, and regional levels. In addition, there is strong engagement between Quantum Leap and with other non-governmental organizations as well as stakeholders to push their initiative.

Quantum Leap began its work in March 2020. The team's main goal is to educate, influence, and inspire people and organizations so that they apply climate change sustainability into their lifestyles and future models of development. This is sustained by the emphasized values: optimism, creativity and innovation, compassion and awareness, and effective communication and collaboration, to allow everyone to live in a more connected and environmentally friendly world (Quantum Leap, n.d.).

The organization Quantum Leap is sponsoring the newly founded organization Change Clubs that is hoping to launch clubs in Costa Rica. The organization was set to begin their pilot Change Club in January 2023. In Change Clubs, members of the community will gather to improve their sustainable living habits and support each other while engaging with the Change Clubs app.

## 2.7 Change Clubs

Recently in the Autumn of 2022, the organization Change Clubs was officially launched in Germany. The clubs are looking to create groups of friends, co-workers, family, and neighbors who together work towards a more sustainable and climate-friendly lifestyle. The goal of Change Clubs is to provide a space for the community to share experiences and knowledge amongst themselves. According to the organization people are more motivated in a group when they have an environment of people with the same goals (Change Clubs, n.d.). Change Clubs is in the process of developing an educational online platform and is establishing a presence on social media platforms. The opportunity to create an individual branch will be available to everyone, with a quite straightforward process to sign up and establish in your region.

Currently, Change Clubs is developing an app to offer support, inspiration, and advice for potential and current members. Most of the content in the app is geared toward North American and European climates which in comparison to Costa Rica's climate are much colder and require temperature-specific approaches towards a sustainable lifestyle that would not work in Costa Rica. This project aims to shift the app to Costa Rican climate and culture through research, interviews, and experience of the country's climate and style of living. In addition, cultural, psychological, infrastructural, and systemic obstacles in Costa Rica should be considered.

The framework provided for Change Clubs is based on the 17 United Nations Sustainable Development Goals. The Sustainable Development Goals were adopted by the United Nations in 2015, to achieve a more sustainable future. They address global challenges including "poverty, inequality, climate change, environmental degradation, peace and justice." (United Nations, 2022b). In Figure 1 you can see an infographic that covers all 17 goals. Change Clubs will focus more on the environmental and climate protection goals, but they hope to address several of the Sustainable Development Goals. The organization Quantum Leap sponsors and supports this club along with several other organizations such as the World Future Council, Eevie, Regionique, Anthrõpia, Klimafreundlich Leben...etc.


Figure 1: Infographic on the 17 United Nations Sustainable Goals United Nations Sustainable Development (United Nations Sustainable Development, 2018).

## 2.8 Psychosocial and Mental Health Impacts of Climate Change

Many structural and psychological barriers stand in the way of behavioral changes that would help prevent climate change. Direct impacts on communities, such as extreme weather events, may encourage immediate effects on mental health issues in those areas. More vulnerable communities will also experience ongoing disruptions to social, economic, demographic/cultural, and environmental determinants. With these direct impacts along with climate change being a

global environmental threat, comes the creation of emotional distress and anxiety about the future (Swim et al., 2010). Since emotional reactions are important components of information processing and directly relate to physical and psychological health, the act of overwhelming one with information will be counterintuitive. This is due to the fact that attempts to create urgency about climate change by appealing to fear of disasters or health risks will lead to the direct opposite of the desired response. In return, the emotional responses of despair, and the sense of feeling overwhelmed or powerless will cause the inhibition of thought and action among individuals (Swim et al., 2010). In addition, more "complicated" or "daunting" questions may lead to a sense of despair and a "closing off" to the topic as a whole. Some common barriers that prevent individuals from expressing emotions/concerns related to environmental degradation include fears of being seen as morbid, unpatriotic, or lacking in terms of information (Swim et al., 2010).

General sequences of psychological barriers include ignorance, uncertainty, mistrust and reactance, habit, conflicting goals and aspirations, and belief in solutions outside of human control. Ignorance among a population can pose a significant barrier to action due to the failure of being aware of their surroundings. In larger countries such as the United States along with others, the minorities of certain populations may not see climate change as a significant problem which causes people to remain unaware of the issue at hand (Swim et al., 2010). Since some people in populations remain unaware, there is a lack of knowledge about which specific actions to take. However, most people in populations are not ignorant of the problem as they are aware, they are just unsure of which actions to take, and which would be the most beneficial. In terms of uncertainty, it can be quite daunting to think about the "unknown" in addition to the risk that could follow. Mistrust and reactance stem from the lack of trust among scientists and government officials in addition to the reaction against advice or policy that some may not agree with (Swim et al., 2010). In this case, psychologists can mitigate this situation by providing additional knowledge and understanding to address concerns. It is known that habit may be one of the biggest obstacles to the mitigation of climate change as it is easier for someone to stick to their daily schedules and actions rather than change them. This source of comfort would surely prevent someone from becoming more eco-friendly or sustainable due to staying in their comfort zone and following long-standing habits. With this being said, people's goals and values may conflict with what is truly helpful to the environment and take part in more expensive activities, which is in return counterproductive. Psychologists and other social scientists should work to find ways to mitigate external factors and structural barriers by providing ways in which solutions to climate change can be trusted among people.

## 2.9 Denial with Climate Change

In the United States, few people view climate change as an immediate risk and prioritize other social issues instead. With the lack of concern about climate change, there is a problem in

terms of effective communication about these risks. However, since people across the country perceive these issues as less serious, levels of motivation are lacking with the feeling that their individual actions will not initiate change. When people believe they have no control over climate change, mechanisms such as denial are facilitated.

There is minimal initiated climate action due to the denial and the absence of acceptance that the climate crisis is a pressing concern. Psychological and sociological theories of denial have been used to further our understanding regarding denial of global warming. Sigmund Freud, a well-known neurologist, talks about two different types of denial. The first type is negation, which occurs when something known is reputed as not true, not happening, and not real (Freud, 1925). Negation is an industry-funded attempt to cause people to deny climate change. Denial can also be conscious—sometimes called 'denialism'. An example of denialism is corporate businesses such as the fossil fuel industry denying that their products are harmful to public health and the environment. To do this successfully, these industries coordinate public relation campaigns and utilize their own experts to deny their harmful contribution (Cohen, 2001).

The second type of denial is when something is known but is treated as unimportant. Also known as 'disavowal', which is very similar to what the sociologist Stanley Cohen called implicatory denial, where facts are recognized without any consequent responsibility to act on them (Bickford, 2002). It enables people to avoid feeling disturbed and responsible for their actions. Disavowal is a concept that can help us better understand our difficulties in responding to the climate emergency (Freud, 1925). Many people think of climate change risks and the benefits of mitigating them as both uncertain and in the future; therefore, all factors lead people to discount them (Swim et al., 2010).

Emotional reactions to climate change are likely to influence perceptions of risk. Yet, emotional reactions to climate change risks are likely to be conflicted and muted because climate change can be seen as a natural process, and global environmental systems perceived as beyond the control of individuals, communities, science, and technology (Swim et al., 2010). There is, however, significant variability in people's reactions to climate risks, most of which is mediated by cultural values and beliefs. In general, the concept can help demonstrate that people have a range of ways to deny reality, either by keeping it at bay for the moment or by finding more rigid ways to block awareness.

## 2.10 Not Feeling at Risk

It is a known fact that individual perceptions and judgements regarding climate change have impacts on the levels of concern and motivation to act. With regard to this level of concern, 75% of people in the United States have assessed global warming as a "very/somewhat" serious problem. This result is similar to the level in Russia (73%) and lower than that in many other nations which include: Canada (87%), Mexico (81%), France (95%), China (88%), Japan (97%),

Brazil (96%), and India (94%) assess global warming as a "very" or "somewhat" serious issue (Swim et al., 2010). This information proves that there is a link between peoples' perceptions on the severity of climate change and how inclined they are to act.

Risk perceptions, in a broad range of domains, are more influenced by associative and affect-driven processes than by analytic. Analytical reasoning is a person's ability to identify patterns within a group of facts or rules and to use those patterns to determine outcomes that could or must be true (Swim et al., 2010). Analytic reasoning cannot be effective unless it is guided by emotion and affect (Swim et al., 2010). This is because if you are passionate about something, you are more likely to do it. For example, global climate change appears to be an example where there is a dissociation between the output of the analytic and the affective systems, which results in less concern than what is advisable (Swim et al., 2010). The analytic consideration is suggesting to most people that global warming is a serious concern, but the effective systems in place, such as the government and legislature are failing to act on this concern. Individuals perceive climate change as a simple and gradual change, ranging from current to future values on variables such as climate temperatures and the intensity of specific events such as cold fronts, hurricanes, or tornadoes. The risks posed by climate change would appear to be well known and controllable, and therefore not dreaded (Swim et al., 2010). For example, in most cases, people do not move away from climate hazards even when they are aware of them due to attachment to families, jobs, and communities. People are not willing to come to terms with the reality of the planets' degradation.

## 2.11 Models of Behavioral Change

In order to address climate change, it is important to understand the behavior of individuals as well as groups in society. The way one acts might impact their decisions towards a more sustainable world. To better comprehend how both psychological and social influences can affect behavior, theoretical models of human behavior have been created that range from educational, extrinsic/intrinsic, information processing, and social models. The main model used in the past to create policies is called the "Rational Choice Theory", which describes human decisions as choices made purely on rational ideas (Williamson et al., 2018). The model demonstrates that individuals will make decisions that outweigh the cost and benefits of that decision. People will choose the choice that has the highest benefit and least expected cost, inferring that humans only care about their interests. On the other hand, this model has been extensively disapproved as it is a highly limited explanation of human behavior and it makes many assumptions about the individual, which tend to not hold. The model does not account for the future and uncertainty of the world we live in (Williamson et al., 2018).

Behavioral science has revolutionized over time and has created models that better conceptualize how behavioral change can occur. Educational models emerged from the idea that

educating individuals will lead to the realization of the issue and therefore change one's attitude along with their behavior. Although education models might seem like a great strategy they must be paired with another strategy as "evidence suggests that it is less effective alone than paired with other techniques" (Williamson et al., 2018). This can be true as education models don't provide any type of reward to the individual for the decision made. For instance, extrinsic motivation models provide an external reward while intrinsic motivation models provide a self-reward.

Extrinsic and intrinsic motivation models were once the gold standard when it came to behavioral change experiments, as both approaches seemed to be initially successful on paper. Extrinsic motivation models are an approach that aims to motivate the individual through incentives and or punishments to change their behavior (Williamson et al., 2018). The main issue with extrinsic motivation models is that it does not lead to long-lasting behavior since the individual only performs the task because there is a reward at the end. The model requires either continuous or larger rewards to keep obtaining the same outcomes as before. On the other hand, intrinsic motivation models do not provide an actual incentive but instead, describe how humans are inclined to have certain goals because they genuinely enjoy the behavior. This model shows a different approach to self-motivation that serves as a tool to understand what causes one's behavior and the satisfaction it provides (Williamson et al., 2018).

Aside from these models which see the human as more than a machine, information-processing models center around the idea that humans are more computer-like information processors. These models suggest that in order to motivate an individual first it is important to provide the fundamental informational needs of humans (Williamson et al., 2018). Within information-processing models, there is the "Reasonable Person Model" and "Model Building". The "Reasonable Person Model" is mainly built around "Model Building" and the concepts of effectiveness and meaningful action. However, "Model Building" includes the natural desire to explore and understand the world we live in and to gradually build mental maps of everything that surrounds us (Williamson et al., 2018). Overall, information-processing models believe that supportive environments will change the individual's attitude, ability, and meaning to their motivation which will end with a change of behavior.

Finally, social models determine ways in which humans might behave by emphasizing the context and structures humans tend to interact with. These models focus more on the actions of the individual rather than on the individual itself, since social contexts will affect the way the individual will interact and make inevitable decisions. Social models include the "Norm Activation Model" and the "Value-Belief-Norm Model" which supports the formation of personal norms that will in return lead to feelings, responsibilities, and behavioral change (Williamson et al., 2018). The "Norm Activation Model" determines that individuals act in a way to fit the social standards supported in society. Nevertheless, the "Value-Belief-Norm Model" proposes that the individual

will act and make decisions based on personal norms rather than social norms, for which humans will behave based on personal values and beliefs (Williamson et al., 2018).

## 2.12 Psychology of Group Motivation and Collaboration

Quantum Leap and Change Clubs are looking to organize club groups to motivate Costa Ricans to adapt to sustainable healthy lifestyles. Group motivation is key in establishing a change in behavior and breaking habits. There are two major categories for theories of motivation: content and process theories. “Content theories focus on factors that motivate behavior by rewarding or reinforcing it. Whereas process theories attempt instead to determine how factors that motivate behavior interact with each other” (Polites, 2021).

Some content theories that may apply to Change Clubs are Maslow's Hierarchy of Needs, Clayton Alderfer’s ERG theory, Frederick Herzberg’s Two-factor theory, and Kenneth Thomas’s intrinsic reward theory (Granite State College, 2020). Maslow’s Hierarchy of Needs touches upon the needs of being human which are physiological, safety, belonging, esteem, and personal accomplishment (50Minutes et al., 2015). The last three needs pertain to what Change Clubs is trying to accomplish. William Schultz, a well-known American psychologist in his book, *The Interpersonal Underworld* argued that “the need for affection, or appreciation, is basic to all humans and we all need to be recognized and feel like we belong" (Schultz, 1966). Change Clubs would provide people with an environment where people have a sense of belonging, can uplift each other, and are recognized for their accomplishments in sustainability.

Clayton Alderfer’s “ERG" Theory focuses on differentiation and integration. Differentiation is a broadening of people's awareness through new and challenging experiences. Integration is when an individual brings together diverse elements of their personality into a new more unified form (Alderfer, 1973). Joining a club similar to Change Clubs, new members may feel new and unfamiliar, however over time the members become familiar and feel more confident with their role in the group. Frederick Herzberg’s Two-factor theory classifies motivation rewards as “Motivators” or “Hygienes”. “Motivators” include achievement, recognition, responsibility, and the opportunity to advance within a group. The “Motivators” contribute to personal satisfaction but are not necessarily needed. However, on the other hand, “Hygienes” are money, status, and job security and they do not contribute to personal satisfaction but if people do not have them, they are unsatisfied (Herzberg et al., 1959).

Lastly, Kenneth Thomas drew a difference between extrinsic rewards, which come from external environments, and intrinsic rewards, which come from within an individual or group. His theory was that intrinsic rewards are likely to motivate people and identified four different intrinsic motivators. Those include a “sense of meaningfulness, choice, competence, and progress” (Thomas, 2000). These content theories provide insight into the psychology of motivating people through rewards.

On the other hand, process theories of motivation determine how factors that motivate behavior connect. The first is the Expectancy Theory originated by Victor Vroom in which people are motivated if they believe they will receive a reward, that it is something they value, and that it is attainable to achieve. The second is Fritz Heider's Attribution Theory where people's behavior is motivated by how they interpret the behavior of others around them. Lastly, there is Edwin Locke's Goal-Setting Theory; people are motivated to behave in a certain way to achieve a particular goal (Polites, 2021). All of these theories help to clarify how factors like goals, rewards, and environments can motivate people to behave in a certain way.

To form collaborative groups committed to climate action, some collaboration strategies are important to consider. Social links are long-term connections based on emotional connections, shared identities, and common values. Appealing to people's social links promotes collaboration within a group. It is also important to celebrate group accomplishments to maintain focus and energy (Polites, 2021). Change Clubs hope to launch community-based clubs in Costa Rica to improve their sustainable living habits while engaging with the Change Club app. These theories in group motivation and collaboration will be key in ensuring that Change Clubs will be successful and motivational.

# Chapter III: Methodology

The goal of this project was to assist Quantum Leap in their newest initiative called Change Clubs by gathering qualitative information on group dynamics and engagement and verify climate action recommendations specific to tropical climates. Change Clubs are looking to create groups of the community that work towards a more sustainable lifestyle. This section provides the methods that we performed to achieve our project goals. We accomplished gathering qualitative information on group dynamics, by doing extensive research in databases and previous case studies. We also reached out to other sustainability groups and organizations to gather feedback and provide recommendations on group psychology and behavior to Quantum Leap—so they can eventually apply that information to Change Clubs. Secondly, we accomplished verifying the climate action recommendations specific to tropical climates by surveying the public in various provinces of Costa Rica.

## 3.1 Group Motivation and Dynamics

We obtained data through research and interviews to analyze how people interact with one another in group settings. In order to do this, we found and contacted organizations that hope to make a difference through sustainable actions or that have partnered with Quantum Leap in the past and interviewed some of their members. Some research and interview questions were based on questions proposed by our sponsor which consist of: (1) What keeps people engaged in a group activity or dynamic such as that of the Change Clubs? (2) What are the key ingredients to group motivation and permanence? (3) Are there specific community-building dynamics or psychology-based insights that could help build up the Change Clubs initiative?

For the project, our team used interviews and case studies as research methods to collect qualitative data. In order to generate the questions needed for the interviews, we used the sources given by Quantum Leap. For case studies, with the help of our sponsors we connected with groups similar to Change Clubs around Costa Rica and examined what techniques they have applied to keep participants engaged and motivated while creating a sense of community. We also organized the data acquired in specific folders found in Google Drive to facilitate the use of this data when providing solutions to the research questions supplied by Quantum Leap.

## 3.2 Interviewing Sustainability Organizations

Quantum Leap is looking for recommendations on group dynamics and group motivation to help with starting their initiative of Change Clubs. Quantum Leap and Change Clubs have numerous partners and sponsors that have similar initiatives. For our project, we contacted organizations that have similar goals in encouraging individual sustainability. We contacted these organizations through email and contact forms on their websites. We asked them if they are willing

to answer a list of predetermined questions or if they are willing to set up a time to interview over an online platform, specifically Zoom or Microsoft Teams. The interviews were conducted virtually since many of the organizations are located in various areas. We decided that interviewing the organizations was the best way to gather the information we needed, since we could gather more information at one point in time. Emailing a set of questions is an asynchronous method which permits subjects to respond in their own time. We accomplished this task throughout several weeks in Costa Rica. The insight was used to provide Quantum Leap with recommended actions on group motivation and dynamics to ensure that the Change Clubs are a success from the beginning.

### 3.2.1: Interviewing Techniques

We interviewed these organizations to learn about their techniques and gather feedback from their success and challenges. We used the semi-standardized interviewing technique for our interviews with other sustainability groups. In this technique, we had a predetermined set of questions which can be found in Appendix C, but we still had the ability to freely pivot the discussion and ask clarifying questions. We set up the interviews by starting off with a few throwaway questions about the interviewees demographics to ensure they feel comfortable. The information in those responses is not included; they were to break up the initial tension. We then began with some essential questions and then followed up with more sensitive questions. Afterwards we had a few extra validating questions in which we restated previous questions for validation of the responses. Probing questions were also asked to obtain more detail from the subject's response. We were able to record the interviews to allow us to have time to take notes and translate the responses. Most of these interviews were conducted virtually over an online platform to be more efficient with time and to enable us to get a broader scope of feedback from the world. We obtained verbal consent prior to recording the interviews. All the data we collected from the interviews is qualitative and it was analyzed to provide recommendations to Change Clubs.

### 3.2.2 Analyzing Qualitative Interview Data

To analyze the qualitative data, we analyzed the content and the themes of the responses of the interviewees. An approach to qualitative data analysis includes five steps: (1) To prepare and organize your data (2) Review and explore your data (3) Develop a data coding system (4) Assign codes to the data (5) Identify recurring themes (Streefkerk, 2019). Through interviewing and recording the interviews, we took notes on the questions and responses and translated them if needed. We organized our interview responses in our Google Drive in several folders and documents. To analyze the overall themes, we compared responses and examined key topics to find a connection between all of the organizations we interviewed. The responses from the

interviews are confidential and ethical considerations were taken. Refer to our Section 3.5 Ethical Consideration for more information.

### 3.3 Surveying the Public

To get an idea of how people from various areas of Costa Rica view certain climate action tips, we offered surveys to groups of people from the city as well as the neighboring provinces. By doing this, we were able to get an idea on how much people incorporate a sustainable lifestyle depending on where they reside. This allowed us to compare the same survey questions from different demographics to analyze how the climate action tips are applicable to random people that participate in the survey process. In addition, this was done by using a set of predetermined questions on paper or contactless surveys, depending on the individual's preferences. We began with handing out an initial survey to 10 individuals that includes the four climate solution tips: energy, diet, mobility, and waste. Next, we used feedback from the initial survey responses to make corrections to obtain more valuable responses from the public. The purpose of acquiring information from different parts of San José and Costa Rica was to be able to clarify and strengthen the climate action tips recommended and presented for our project. By asking survey questions to random samples of people in public settings, a convenience sample was obtained. The convenience sample relies on available subjects–those who are close at hand or easily accessible (Berg & Lune, 2018). Overall, we were able to gather a broad sample of data since we were not aiming towards a specific group of people.

#### 3.3.1 Data Collection Methods

To find overall trends among those we are surveying, we used a "mixed method" approach that involved surveying the public in addition to interviewing them after the surveys (Berg & Lune, 2018). There was implied consent with our surveying, but at the beginning of the survey there was a disclosure to ensure that there was a full understanding of age requirements and expectations. Each mixed method approach will be elaborated upon in the following section. The purpose of this was to gather the initial information from the surveying questions, however interviewing the survey participants afterwards allowed us to gain a more personal and intimate understanding of their opinions on the topic. We started by offering paper or paperless surveys depending on preference and included a section at the bottom of those surveys for their name and contact information if they are interested in a further interview. For further clarification, we added that their name and contact information will not be shared and will remain anonymous unless the subject agrees for a certain reason. Further interviewing questions can be found in Appendix B. The surveying method was helpful in finding the overall trends, but further interviewing allowed us to get a better understanding behind the trends on the interviewees' personal levels using the qualitative methods described earlier. The quantitative process to find these trends was using Excel

to calculate averages, the number of times answers were given, in addition to correlation and reliability (Streefkerk, 2019). An important idea to highlight is that these results are not representative of Costa Rica as a whole since it is nearly impossible to entirely gather information from each demographic in the country.

### 3.3.2 Questionnaires

To determine what the people are thinking, we went to local businesses, shops, parks, and university campuses to ask random people questions by paper and provided a Quick Response (QR) code. Question types include short answers and multiple choice, which can be found in Appendix A. As mentioned previously, the questions were based around the four climate solution tips being used. To obtain a random sampling in addition to structured data, predetermined questions were asked through the methods of paper-pencil questionnaires and web-based questionnaires. For the paper-pencil method, we were able to offer large quantities to anyone when in public. We mainly used this method to ensure that there was an equal chance for those without access to technology in Costa Rica. This allowed us to obtain truthful responses due to the fact that people are more comfortable with controversial issues, including issues regarding topics around climate change, when their responses are anonymous (University of Michigan Eau Claire, 2019). However, we faced the risk of people not returning them, along with a potential low response rate. To counteract the disadvantage to paper questionnaires we also offered web-based questionnaires, specifically a QR code mentioned above to direct participants to a set of questions that can be found in Appendix A. By doing this we obtained a convenient sampling of people as they were quicker and required less detail. These brought a higher response rate in younger individuals as they were more convenient to scan and fill out when the subject was able to. For those who did not have access to a smartphone, computer, or tablet, the paper-pencil questionnaires were offered. With this, we were able to gather quantitative data as well as qualitative data as many who filled out the questionnaires agreed to further interviewing.

### 3.3.3 Analyzing Survey Data

To analyze survey data, we used quantitative methods to look at the responses from participants. We were able to compare the responses from each of the two demographics we are analyzing and compared them in Excel with repetition of responses, correlation, and reliability. In addition, we utilized an artificial intelligence software called ChatGPT to analyze responses, allowing us to make more in-depth conclusions. After we further looked at the responses within the rural and urban areas, we compared the two demographics as a whole to see how they envisioned the climate action tips along with how involved they are with sustainability in their daily lives. This was helpful in providing support to our project objectives which include: (1) To provide methods to keep groups engaged, motivated, and build up the Change Clubs initiative (2)

To verify a set of tropical climate solutions and tips to modify the content of the Change Clubs app (3) To identify any other contributing factors and obstacles to climate action.

### 3.4 Ethical Considerations

Throughout our project, we needed to ensure that all the people involved in our project through interviewing and surveying felt comfortable and ensured that their information was protected. Confidentiality is an active attempt to remove from the research records any elements that might indicate the subjects' identities (Berg & Lune, 2018). It is important to remain confidential with any information gathered from surveys and interviews. We wanted to ensure that the other organizations were comfortable sharing information knowing that they would not receive repercussions from the organization they work for. We also wanted to ensure that the Costa Ricans felt comfortable with the interview and survey processes in order to ask them about recommended sustainable actions. Some common ethical concerns in behavioral research are the nature of volunteering. Volunteer subjects may be coerced into volunteering, which may allow for questionable responses (Berg & Lune, 2018). Our goal was to not pressure people to participate and allowed them to volunteer at their own will. A strategy for safeguarding confidentiality is to avoid keeping identifying records any longer than necessary (Berg & Lune, 2018). We utilized these strategies when needed, in addition to providing anonymity to keep the subjects nameless and protected.

We were looking to get active consent in our project through asking verbally. There was implied consent amongst our surveying, however we still included a disclosure at the top of the survey. For our project, our target audience were adults over the age of 18 years old. We asked for the subject's age at the very beginning of our survey or interview to ensure that we could legally obtain consent from our subjects. Anyone under the age of 18 was not interviewed; any accidentally gained survey information from someone under 18 was demolished. We registered with the Institutional Review Board (IRB); a research ethics committee, to ensure that our methods remained humane and ethical.

# Chapter IV: Results and Analysis

In this chapter, we explain and elaborate upon our findings from the research, surveying, and interviewing we completed to meet our project objectives. In order to provide psychology and group motivation recommendations and to verify existent climate action recommendations that we were given, our team established the following objectives as discussed in the previous chapter:

1. To provide methods to keep groups engaged, motivated, and build up the Change Clubs initiative.
2. To verify a set of tropical climate solutions and tips to modify the content of the Change Clubs app.
3. To identify any other contributing factors and obstacles to climate action.

By following these objectives, we were able to make recommendations for Change Clubs based on psychology and group motivation, in addition to verifying existing climate action tips by surveying the general public and interviewing other sustainability organizations.

## 4.1 Psychology and Group Motivation Research

In the daily lives of various people, there are prevalent barriers that avert some from becoming more sustainable in their community. There is an intention-action gap present in which minor aspects of people's surroundings affect the outcomes of their decisions. Most people have the intention of acting more sustainably but do not follow through. “Choices” are often habitual behaviors, influenced by daily routines (United Nations Environment Programme, 2017). To change these daily routines, Change Clubs is looking to create groups of people to encourage making habits more sustainable. The club would like to motivate people to become more environmentally friendly and keep participants engaged. We believe the Datta and Mullainathan approach is the best to provide recommendations to the club. The approach is to define the problem, diagnose the barriers to action, design solutions, and then test the solutions (United Nations Environment Programme, 2017). The two main problems we are addressing using this approach are choosing sustainable options and keeping people engaged. The psychological barriers to climate change are lack of motivation, following social norms, lack of sustainable options, denial, and anxiety. Based on several studies and research, the following information was found to combat these psychological barriers to climate change.

### 4.1.1 Point System

A study that we found applicable to our research was a mega study targeting 61,293 participants of an American fitness chain who were encouraged to exercise with different digital

programs (Milkman et al., 2021). This was done to support behavioral science studies. The results of the study were that they were able to effectively increase exercise through planning, reminders, incentives, and rewards. The study rewarded the participants utilizing a point system and allowed the participants to be a part of the planning and choosing when points were gained or lost. In addition, the members were able to earn extra points for making up a missed gym session (Milkman et al., 2021).

A rewarding point system encourages people to participate in individual sustainability. Implementing a point system shows people that they are making a difference. This is important because the benefits of becoming more sustainable are not easily seen on a larger level. According to Maslow's Hierarchy of Needs, one of the needs of being human is personal accomplishment (50Minutes et al., 2015). Implementing diverse levels that can be reached once the goal number of points is accomplished, could appeal to people's need for personal accomplishment. The point system would also encourage people by utilizing Edwin Locke's Goal-Setting Theory that people are motivated to accomplish something when a goal is set (Polites, 2021). Furthermore, the mega study found that reminding people also encouraged people to remain engaged in the activity. Having reminders or encouraging phrases would help increase participation in an activity. Frederick Herzberg's theory classifies motivation rewards as "Motivators" or "Hygienes". "Motivators" include achievement, recognition, responsibility, and the opportunity to advance within a group (Herzberg et al., 1959). By having clubs recognize everyone's levels or state what levels they are on in weekly/monthly meetings, the members can witness other people's progress. To add, it would make them feel that they are not on the same level with everyone else and encourage them to advance with the rest of the group.

Another challenge to becoming more sustainable is that the consequences of consumption are often hard to see. Energy consumption is hard to physically see, and people normally cannot see their usage until they receive their bill weeks after. By using a point system, people can keep track of their consumption. For example, there are water filter dispensers that state how many plastic water bottles have been saved based on how much is dispensed from the machine. By telling people how much a resource is being saved, it adds to the feeling of accomplishment. Including information on the average consumption of energy and providing information on how to check electric gages in your own home makes people become more aware of consumption.

### 4.1.2 Rewarding

Through a point system, there could be rewards to motivate engagement in clubs. The two main types of reward are extrinsic and intrinsic rewarding. Extrinsic is an external reward to motivate people through incentives and or punishments for their behavior (Williamson et al., 2018). The only issue with extrinsic motivation models is that it does not lead to long-lasting behavior since the individual only performs the task due to there being a reward at the end. On the

other hand, intrinsic rewards are self-rewards that come from within an individual or group (Thomas, 2000). To the people interested in climate action, a sustainable club would provide satisfaction for these people. There is also the Expectancy Theory in which people are motivated if they know they will receive a reward (Polites, 2021). A reward system in which the highest points/level by the end of the month receives a prize could motivate people to become more sustainable. However, by rewarding too often, there will not be long-lasting changes in their habits or behaviors toward sustainability. Therefore, a balance in rewarding needs to be established to motivate participants and create change.

### 4.1.3 Appealing to Societal Norms

An important concept to consider is that behaviors are influenced by peers and social groups. For decades, advocates have believed that the only way to convince people to become more sustainable is to highlight the consequences and impacts climate change has had on the world. However, individuals have not changed their behavior based on this information, even though 6 in 10 Americans know that climate change is already affecting their community (Williamson et al., 2018). In 2012, the company Tesla Inc, unveiled their new Model S luxury electric sedan and since, this car has become one of America's best-selling sedans. This did not occur because people decided to become more sustainable by purchasing electric vehicles, but because Tesla Inc, introduced a car that portrayed a futuristic status symbol in society (Bobrow, 2018). Tesla Inc utilized a behavioral model called the "Norm Activation Model" which dictates that individuals will always act in ways to fit social standards supported by society (Williamson et al., 2018). In this case, society did not dictate that being sustainable was socially accepted but instead that owning a Tesla was a status symbol in society—making it socially acceptable. With this being said, it is imperative to meet social standards instead of trying to convince people to become more sustainable by highlighting the consequences and impacts of climate change.

Furthermore, a recent OECD (The Organisation for Economic Co-operation and Development) study found that consumers were more willing to purchase sustainable or organic meat products when they thought that others were also doing so (United Nations Environment Programme, 2017). People look to their peers to follow what is considered "right". In addition, societal norms influence group and individual decision-making. From the mega study mentioned in Section 4.1.1, it was found that "telling participants that the majority of Americans exercise, and the fraction is growing produced an estimated 0.35 more weekly gym visits per participant (a 24% increase in exercise) compared with the placebo control" (Milkman et al., 2021). The study demonstrates that people will follow what they think the majority of other people are doing. In addition, Fritz Heider's Attribution Theory states that people's behavior is motivated by how they interpret the behavior of others around them. The sense of belonging is a human need, and making the participants feel they are left out, will likely result in changing their habits to suit society.

Using factual statistics that demonstrate that the majority of society is following sustainable steps encourages people to follow the social norm and become more sustainable. A social app where people compare points and levels against each other appeals to people's need to want to fit in with everyone else. Having an app to tell you where you stand compared to friends and family, and on a global level appeal to competition with neighbors, coworkers, and friends. Naturally, people want to be included and an app with a friendly competitive network can make you feel responsible for not acting.

### 4.1.4 The Default Option, Presenting Sustainable Options

According to the United Nations there are several ways to transform climate action through behavioral science. The first being to make the default option the better option. By defaulting to the more sustainable option, people must opt-out instead of opting in, making it easier for people to choose the greener option. "People are automatically assigned to the conventional option, but when given the choice people usually choose the sustainable option" (United Nations Environment Programme, 2017). The sustainable option should be made the goal or the task, that way people have to go out of their way to be unsustainable—which would be more difficult. The second option is to change how choices are presented to favor sustainable behavior which is done by removing the unsustainable option altogether. To do this you could not have the unsustainable option present, only present the sustainable option. As well, encourage people to talk to local governments to remove the unsustainable option from the local community. For example, by discussing getting plastic bags removed from local stores. Lastly, another challenge to becoming more sustainable is that it is difficult or contains a lot of steps. It is recommended to remove the hassle factor and make the steps simple. This could be done by using signs and visuals. By making educational material simpler and easier to learn, various education levels would be able to become more sustainable.

### 4.1.5 Making it Personal—Analysis of Denial and Not Feeling at Risk

Another challenge to sustainable consumption is that it may not seem personally relevant. When people believe they have no control over climate change, mechanisms such as denial are facilitated. Some people accept that the climate affects other people in other places and fail to accept that individual actions are significant and cannot see the direct impact (United Nations Environment Programme, 2017). The biggest issue is that people are trading-off between short-term and long-term benefits, which is the hardest trade-off for people to make. Ignoring climate change in the short term has benefits to both individuals and organizations, as they do not have to change their habits. Katharine Hayhoe, a climate scientist, discusses how to talk about climate change so people will listen. Her advice was to connect with people and make climate awareness personal. People are more willing to make a change when it is something important to them. She gave an example of this stating, "So today when I encounter someone who's doubtful about the

reality or the relevance of climate change, I don't start out by talking science. Instead, I get to know them to see if I can identify something we share. If they're a skier, it is important to know that the snowpack is shrinking as our winters warm; maybe they'd like to hear more about the work of an organization like Protect Our Winters that advocates for climate action" (Hayhoe, 2019). These findings indicate that the motivation for voluntary mitigation is mostly dependent on the perceived susceptibility to and severity of climate change (Semenza et al., 2011). Additionally, autonomous adaptation is largely dependent on the availability of information relevant to climate change and its impact (Semenza et al., 2011). Using the technique of finding an activity or something that people share in common, and the discussion with them on how it will be affected by climate change, makes it personal. By making the discussion personal it makes them feel that they have a sense of responsibility to help solve the climate issue. Making the climate issue personal will also help them stay motivated for their own personal gain, since the activity they enjoy is being affected.

### 4.1.6 Anxiety and Mental Psychology of Climate Change

General sequences of psychological barriers that are important to consider in climate inaction include uncertainty, the burden of substantial amounts of information, and the lack of knowledge among individuals. Attempts to create urgency about climate change by appealing to fear of disasters or providing too much information at once will lead to the direct opposite of the desired response. In return, the emotional responses of despair, and the sense of feeling overwhelmed or powerless will cause the inhibition of thought and action among individuals (Swim et al., 2010). With the strong lack of knowledge, people in populations will not know which specific actions to take. Some of these actions might be suggested by scientists or politicians, but because there is mistrust present, the actions will not be trusted or followed.

The most helpful way for providing knowledge to people is to take gradual steps in order to prevent some from becoming overwhelmed. In addition, if people are kept fully informed and updated on actions taken or suggested by politicians or scientists, there is a higher possibility that trust will be built. This updated information on politics and legislation of climate change nearby allows people to gain trust in the scientific and educational information being given to them, without daunting ideas making them feel powerless. Providing gradual knowledge to people will bring a more positive outcome to combating climate inaction. A social app that allows the choice to be exposed to information at a desired pace and with freewill would counteract the barriers of being overwhelmed with information in addition to a lack of knowledge. People can be educated at their own pace in finding ways that they can make a difference in the climate. Seeing individual progress and contribution to sustainability allows one to feel more powerful in their personal contribution. Since inaction can be due to feeling powerless, this allows people to see that their efforts—even if small—are making a difference.

Having open conversations and voicing anonymous concerns gives people a support system and essentially brings more action because they would know that they are not alone. Being educated at a preferred pace in addition to being updated on scientific and political information constantly, and lastly having a support system where people can communicate regarding actions towards climate change can counteract the psychological barriers to action among many communities.

## 4.2 Organization Interviews

We contacted and interviewed several sustainability organizations to gather advice and make recommendations for Quantum Leap and Change Clubs. We were able to get responses from the following organizations: Sphera, Clean Wave, Green Wolf Costa Rica, Bodhi Surf + Yoga, Proxima, Chepecletas, and Lifting Hands. The organizations had the option to answer a set of predetermined questions or to set up an interview with us and answer the same questions. We were able to set up five interviews and had two organizations respond to the questions via email. The questions addressed the set-ups of the organizations, and how they motivate and keep people engaged within their organizations. The following section highlights the responses of each of the organizations and the common themes present in several. All notes from the interviews can be found in Appendices D-J.

### 4.2.1 The Clean Wave

The first organization we interviewed was The Clean Wave, which was established in 2017. The organization's goal is to reduce pollution in the oceans and local beaches in Costa Rica. Overall, they host about 10-12 beach clean ups per month and have removed at least 12 tons of waste in underwater cleanups. In total, the organization has about 20 members and measures progress through data tracking and Google Forms. For motivation, they incentivize people to come to their events through free scuba diving certification, food, and merchandise. They believe that their organization has an encouraging and motivational environment because people feed off each other and have the same vision. They also appeal to the fear of missing out in their fun events to keep people attending. When asked what their key ingredients to motivation are, they responded with leading by example, and consistency through creating events to look forward to. The Clean Wave emphasized that communication was important to keep all members on the same page. They also communicate information and news through social media and their website. Their recommendation for starting a club or organization is to be passionate and team up with other non-governmental organizations and municipalities.

### 4.2.2 Ecoins

We received responses from Ecoins, a social enterprise founded in 2018 and their main goal is to reward commitment to recycling and give value to sustainability through their digital platform. The organization has a total of 8 members that share the same purpose and give follow-up to current projects such as organizations that must generate income and provide services. Ecoins measures progress and goals by following work plans, indicators by area, and by measuring the number of users and allies that join. In order to incentivize people or organizations to join Ecoins, they offer incentives that are valuable and interesting. Finally, Ecoins believes that although many people sign up, not all are constant and do not participate consequently—it is important to hear them out and offer innovation.

### 4.2.3 Sphera

Another organization we had the opportunity to interview with was Sphera. The organization aims to promote environmental, social, and economic balance through sustainable projects. The organization was founded in 2007 and is made up of 25 members. Each week they have team huddles with a mix of all departments, and they set individual goals through Key Performance Indicators (KPI). The organization communicates all of their information through Slack and social media. In addition, they utilize Trello and Asana for boards and idea sharing. Sphera keeps people motivated through benefits to employees in addition to being passionate about their organization. Some of their successes are seeing people collaborating and connecting with others and creating a community and space for people to work together. Some of their failures are that it is difficult to track people and measure what they are doing. According to Sphera, the key ingredients to motivation are communication and transparency, and showing that it is not always perfect. Sphera gave advice on starting your own organization to keep it simple, they found it challenging to try and cover a lot of topics at once.

### 4.2.4 Lifting Hands

We interviewed Lifting Hands, which is an organization who works with vulnerable communities to give support in learning and social skills. This organization was founded in 2013 and has over 150 volunteers between their two projects. Their teams function through meetings with the volunteers at the start of the trimester that explain social activities to engage with the group, as well as interaction projects. At the end of the trimester, the volunteers will fill out a form telling the faculty how they are feeling and if they need anything. Lifting Hands measures progress through three measurements. The first measurement is at the beginning of the year to see how the kids behave, one in the middle of the year to see how they have progressed, and one at the end of the year to see how they improved. In order to keep volunteers motivated, Lifting Hands thanks the volunteers for all the work they have done, as well as socializing with them. Lifting Hands

stays in touch with the volunteers by using email and WhatsApp to keep the connection and to support them. As well, the connection between the volunteers and the youth keeps the volunteers motivated to stay with the group, as well as seeing the progress from the kids. Some successes for keeping group members involved are staying in touch, being there for them, and caring for the volunteers. Some failures they have encountered are not all volunteers have the same amount of time, as well as not all volunteers get the same amount of attention, which leads to volunteers leaving. The key ingredients to permanence of members are giving clear instructions, a visible impact, good communication with volunteers, being transparent, caring about the volunteers, and giving spaces, so volunteers can have social interactions.

### 4.2.5 Green Wolf Costa Rica

Another organization we interviewed is called Green Wolf Costa Rica. This organization was founded in 2019 but was legally constituted in 2020. Their overall goal is to create a comprehensive, collaborative, and sustainable movement that supports the socio-ecological recovery of Costa Rica through measures and intersectoral alliances. With a total of 10 members in their board of directors and about 120 volunteers on average per campaign, Green Wolf Costa Rica is more than qualified as a sustainable organization to represent group motivation and psychology. After interviewing with this organization, we found that being active on social media keeps people engaged in their projects. In addition, the organization utilizes WhatsApp, where they have seven different group chats, with about 305 people per group chat. The extensive communication allows volunteers and organization members to remain informed and engaged. When asking how their organization keeps people motivated, they responded that by learning and understanding that everyone is different in other aspects and figuring out how their own personalities contribute to the organization essentially keeps people motivated. Lastly, some key ingredients to group motivation and permanence were transparency, leaders have to be passionate, and be comfortable with compromise and genuine change. Recommendations from Green Wolf Costa Rica towards advice for starting a club/organization were to not be afraid of failure, shield oneself from criticism, and to believe in yourself.

### 4.2.6 Bodhi Surf + Yoga

We also received responses from the organization Bodhi Surf + Yoga, which was founded in 2009. The organization was founded based on the passion they have for nature, yoga, surfing, traveling, and people. This organization is made up of 10 people which meet on a need-based agenda. The organization does not measure progress since they are small and can do it by observation. Bodhi Surf + Yoga keeps people motivated by holding workshops on topics that may interest people such as leadership, self-improvement, the environment, and team building. They also give out benefit packages, do annual rides, and bonuses. Bodhi Surf + Yoga also keeps people

engaged in group activities by taking the time to communicate with each other to make members feel like they are a part of the group. In order to keep a good group dynamic, they take time to hold meetings, team building activities, and from time to time they share breakfast or lunch. To keep people motivated, Bodhi talked about making the person feel that their work is important and valued. Additionally, they are always looking for training and workshops, so the employees feel that what they are learning is important. They said that spending time on 1-on-1 meetings to get to know the person, as well as their needs, desires, expectations, and then personalizing opportunities according to what each person desires is key.

### 4.2.7 Chepecletas

The last organization we interviewed is called Chepecletas, founded in 2010. The organization based its values on promoting public transportation. Since people mainly use cars in the city, the founders decided to start bicycle tours for Costa Ricans in order to help change their minds and start using bikes for transportation around the city. Overall, the organization is trying to make individuals more eco-friendly by using bicycles to get around, in addition to encouraging people to "regain" love for the city. Chepecletas has a total of six people on the field, with one in an office. However, the organization works with others such as universities, travel agencies, and other companies when they do not have enough people to cover. The organization measures progress by the number of people who take part in the activities each year, and this number stands at more than a thousand every year. We then asked about some difficulties the organization faced, and they responded that a challenge was keeping in contact and communicating with members during the global pandemic in 2020, where becoming fully virtual put a slight halt to the projects and activities. Since the members work in offices all over, they try to meet face to face for activities in parks, coffee shops, or restaurants. Overall, their real interest and passion for San José and the environment aids their communication, community engagement, and group dynamics in the organization.

### 4.2.8 Recurrent Themes

After interviewing and receiving responses from seven organizations, we found some common themes between the responses about group dynamics and motivation. From our data, we determined that all seven interviewees either joined or established the organizations because they wanted to make a difference in the world, and to be involved in something bigger than themselves. Overall, all the organizations we interviewed concluded that in order to keep people motivated the following conditions were necessary: communication, transparency, consistency, leading by example, and care for people to make a community. In terms of group dynamics, we found that most organizations have more casual meetings that are held at a cafe or restaurant, and these happen once a week or month depending on the organization's needs. We found that the majority

of the organizations measure progress through data using Google Forms or by observation. For example, measuring the number of people involved and joining the organization over a certain period of time. After collecting and analyzing data from the interviews, we discovered that collaborating and communication are key topics for all organizations, as these bring a sense of belonging to all the participants. Finally, the most common tools for communication used by these organizations were: Slack, Trello, Asana, WhatsApp, Google Forms, Social Media platforms and through their websites.

### 4.3 Survey Data

The survey data in this section was gathered by our team by going out into the general public and surveying people we found at parks, local businesses, and universities. These surveys were done through convenience sampling. There can be sampling bias when using convenience sampling due to the fact the samples are not of equal probability. Therefore, the data represents the participants of the study, but are not representative of the entire population. We minimized bias by making our study replicable and reproducible, recruiting as many participants as possible within our time frame, and distributing surveys at different times, days, and locations.

#### 4.3.1 Demographics

To provide an overview of the respondents of our survey, we asked a series of questions about the participant's demographics. We were able to obtain 152 responses in our survey using paper surveys and Quick Response codes. From there, we were able to find common trends between small-scale sustainability and specific demographics such as income, level of education, and age. All participants reside in Costa Rica; however, a few participants are originally from other countries; only 96.73% were born in Costa Rica.


Figure 2: Map showing where our participants reside within Costa Rica

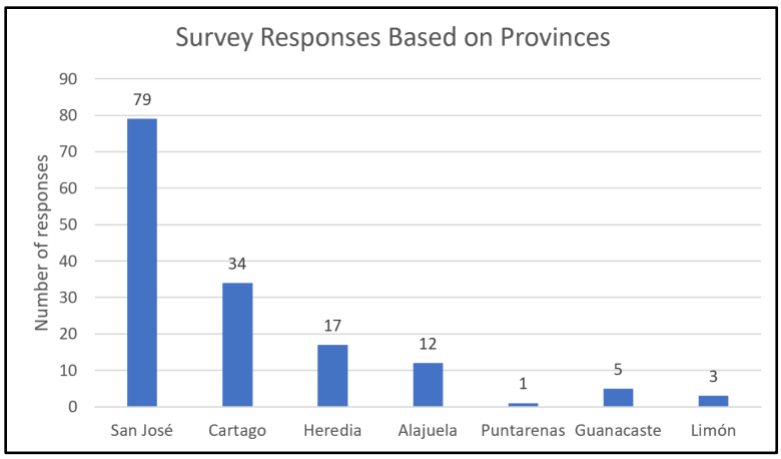


Figure 3: Bar graph showing the number of participants that reside in each of the seven provinces.

We were able to receive responses from all seven provinces in Costa Rica (Figure 3). The seven provinces include San José, Cartago, Limón, Guanacaste, Alajuela, Puntarenas, and Guanacaste. We wanted to get participants from different provinces to compare different lifestyles and see how that would affect the responses. The majority of our respondents live in the San José metropolitan area. This was due to the fact we were residing in San José, so it was more efficient to ask locally than travel far. The map below shows the San José area on a close-up scale to better see the number of responses in that area.

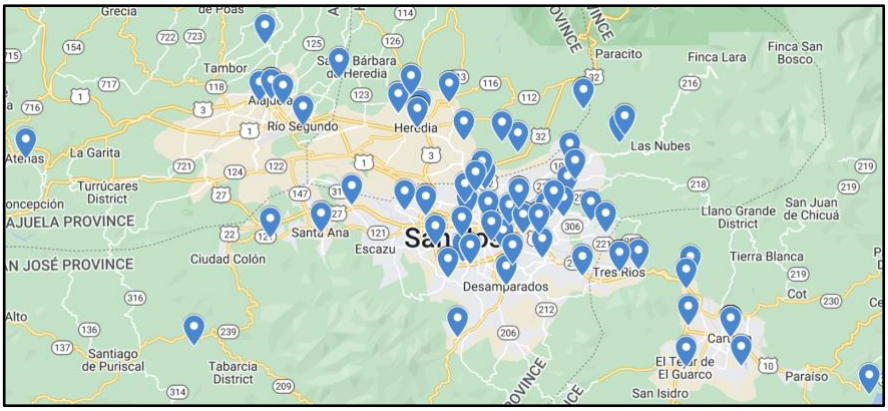


Figure 4: Map showing where our participants reside within the San José metropolitan area.

We then asked about the participant's age and level of education. The respondents' ages ranged from ages 18 to 77 (Figure 5). We found that most of our respondents are less than 35 years old. Providing both paper and online surveys we were able to reach a wide range of ages and therefore, the data from the survey represents several generals living in Costa Rica.

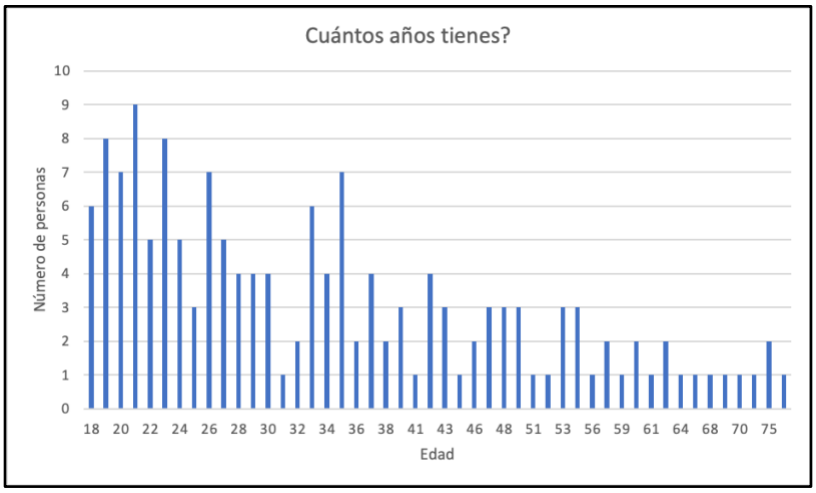


Figure 5: Bar graph showing the age range of all of the survey participants.

We found that the majority of participants have superior education. 59% of the participants have superior education, 21% have general basic, 17% have diversified, and 3% have pre-scholar (Figure 6). Superior education means that they have completed a college or university degree. General basic is the completion of high school including elementary and middle school, and diversified is the completion of an associate degree. We asked about education to see if there were any trends between challenges or knowledge in being sustainable. We found that the less educated participants lacked information on climate change or did not believe in it.

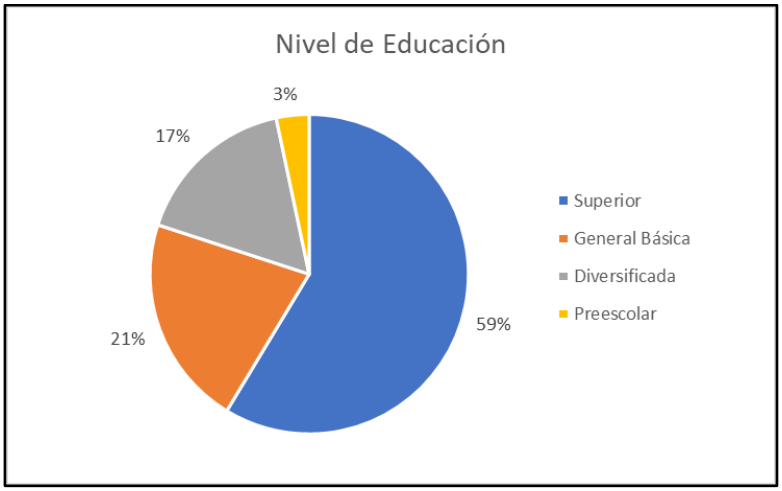


Figure 6: Pie chart demonstrating the level of education of all participants. The options were superior, general basic, diversified, and preschool.

Furthermore, we asked about the participant's income levels to witness any trends that income plays in acting sustainably. Out of all the participants who responded, 30% of the participants we surveyed are students, therefore they do not make an income. We found that 23% make 330,000- 500,000 colones per month. To put that into other terms, they make 535 - 892

dollars a month. From the participants, we found an overall range of incomes, the majority making less than 1 million colones per month or 1,785 dollars per month (Figure 7). It is important to note that some people omitted from answering the question. The percentage was small so it should not affect our data. After analyzing other data, we found that there is a correlation between income and several sustainability habits, including flying, owning solar panels, and home controls.

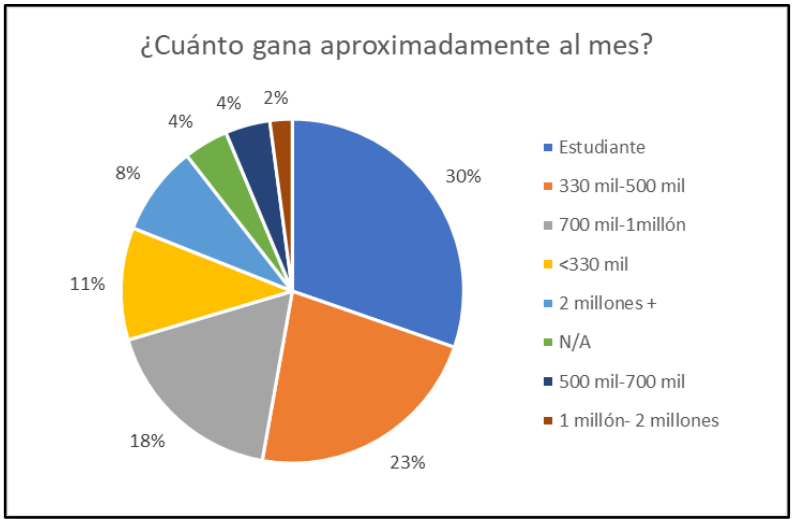


Figure 7: Pie chart depicts the income of participants per month in colones. The options were student, 330,000-500,000 colones, 500,000-700,000 colones, 700,000- 1 million colones, l million-2 million colones, and more than 2 million colones. One dollar is currently equal to 561.80 colones. However, that number changes based on the economy.

Lastly, based on the survey data, we found that 72% of participants live in a house, followed by 28% of participants living in an apartment. Based on what type of residence people live in we found a trend between composting and residence. Among those who live in a house, 22 indicated that they compost, in contrast only 2 people compost among those who live in an apartment. This suggests that there is a correlation between living arrangements and composting. However, it is essential to note that there may be other factors at play that influence whether someone chooses to compost or not. In addition, 91.2% of the participants live with at least one other person. The most frequent response was that 26.4% responded about living with three people. We wanted to see if there was any impact based on the number of people the participants lived with. However, we found no correlation.

### 4.3.2 Mobility

Transportation is an important section in terms of individual pollution, since burning fossil fuels releases carbon dioxide into the atmosphere, resulting in the climate changes visible today. It is important to analyze how people travel to work or school, as well as to understand the modes of transportation that are most accessible in Costa Rica. This allowed us to grasp a better

understanding on transportation challenges to provide to Change Clubs that can be attainable in order for people to follow them.

Based on our results obtained from the surveys, the data in Figure 8 demonstrates that the most common modes of transportation to work or school are buses (32.8%), gasoline powered vehicles (23%), followed by walking (14.5%), and lastly ride-sharing apps (12.3%). We also noted that some people use trains (7.2%), taxis (3%), and electric vehicles (0.9%). It is important to note which modes of transportation are less common. There are also people who work from home and therefore do not use any mode of transportation to get to work or school. We also found that even though a lot of people use gasoline powered vehicles, around 34% of people who use cars carpool to work. Encouraging people to carpool more would help decrease individual carbon footprints. From this analysis, we found that both electric and hybrid cars are not commonly purchased in Costa Rica since they are less accessible and more expensive than gasoline cars.

To better understand the reason behind people using gasoline powered cars instead of buses or trains, we asked a follow up question and learned that most people do not use public transportation due to safety, schedule, cost, convenience, accessibility, efficiency, and distance. Some participants even mentioned that they do not use public transportation for protection against COVID-19 and proximity to work. There were some large disadvantages also mentioned, such as the lack of sufficient schedules, illogical routes, reckless driving by some bus drivers, and vehicular congestion.

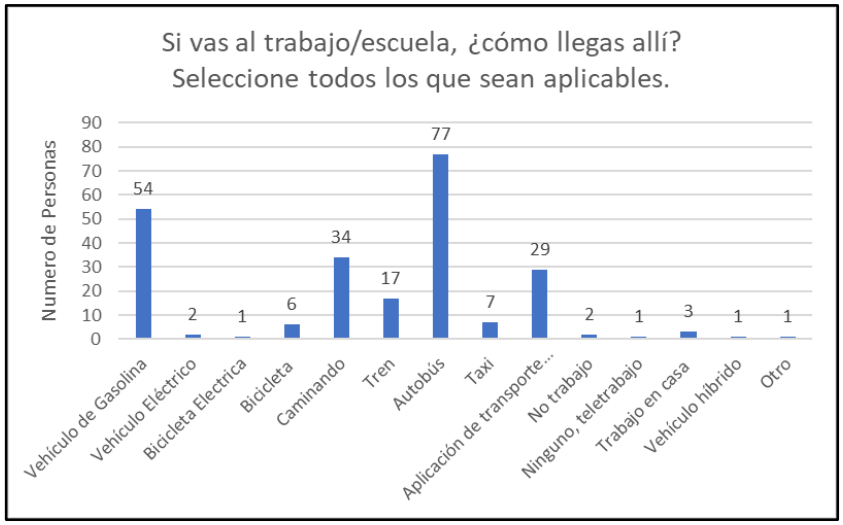


Figure 8: Bar graph showing the most common modes of transportation to go to work or school.

Based on the transportation modes people have access to in their community (Figure 9). The majority of people have access to buses, followed by sidewalks, trains, and bike lanes. From the data gathered, it can be seen that trains and bike lanes are not available everywhere in Costa

Rica, which is important since one of the solutions initially provided by Change Clubs is to bike to work, but only 23.6% of people have access to them.

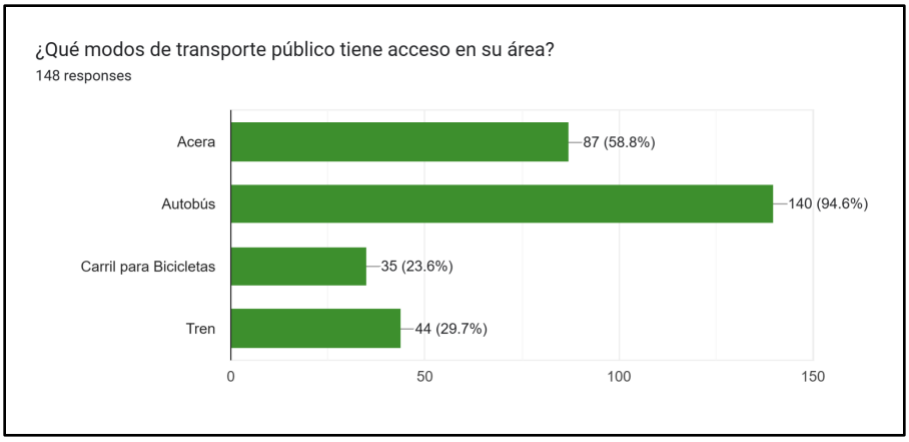


Figure 9: Bar graph showing which modes of transportation the public has access to. The responses are sidewalks, buses, bike lanes, and trains.

Finally, the last mode of transportation we asked the participants about was traveling by plane. Based on our survey data shown in Figure 10, we found that around 54.6% of people never fly while 32.6% fly only once a year, and the rest either fly every 6 months or are frequent flyers. Overall, we found a correlation in income and how frequent the participants fly. We found that out of the people who make less than 500 mil per month, 60.90% responded they never fly. Whereas out of those who make more than 500 mil per month, 28.30% said they never fly. This demonstrates that there are more participants with lower income that never fly in comparison to those with higher incomes.

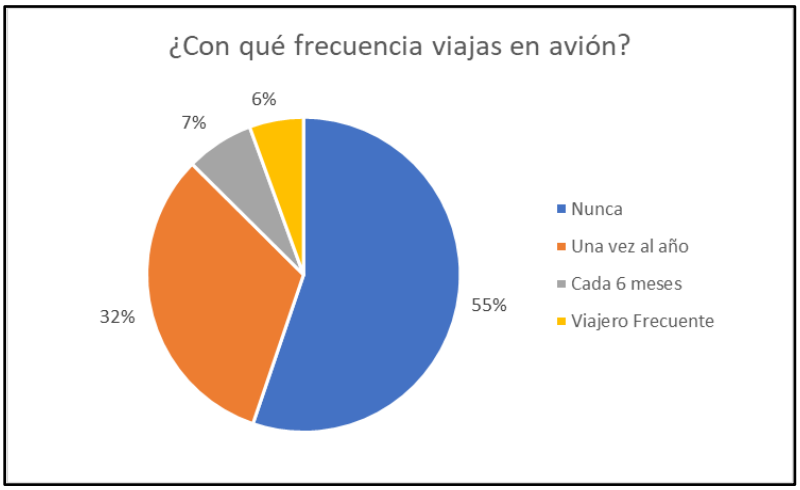


Figure 10: Pie graph demonstrating how frequently people fly by plane in one year. The responses were: Never, Once a year, Every 6 months, and Frequent Flyers.

### 4.3.3 Energy

In addition to the sections above, Change Clubs is looking to transform and implement energy into a more sustainable lifestyle among those who live in Costa Rica. The different types of energy and how they are used in daily lives can be analyzed through our survey participants. Our survey questions are based on the suggestions of Change Clubs to then verify whether or not their energy-based solutions are applicable to Costa Rica.

The first energy-based question we analyzed among participants was the type of light bulbs used in households. In Figure 11, it demonstrates that there was a total of 151 responses to this question that then showed 77% of participants use LED lights, followed by 17% incandescent, and 6% other. This data demonstrates that the majority of participants utilize energy efficient light bulbs, LEDs. This data factors greatly into our survey participants' individual sustainability as they are saving any extra energy with their lighting, even if small.

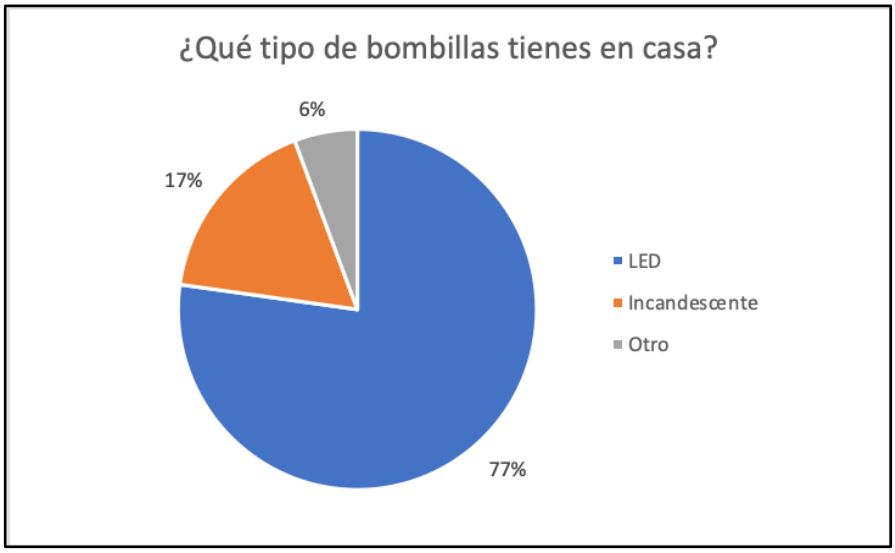


Figure 11: Pie chart demonstrating the types of light bulbs used within one's house. The responses were: LED, Incandescent, and Other.

Adding onto sustainability within houses, we analyzed questions that asked if participants had solar panels in their homes as well as smart home control. For owning solar panels, there were a total of 146 responses, which resulted in 95.9% of participants saying that they do *not* have them. This data demonstrates the fact that being sustainable in this way is simply not feasible–solar panels are too expensive for most respondents. The data for participants and if they have smart home control support this idea as well. With a total of 145 responses, 94.5% of participants do *not* have a smart home. This data supports the idea that sustainability in this state is too expensive, and the majority do not have solar panels or smart home controls. An important aspect to note is the

fact that a solution provided by Change Clubs was to have smart home control, but many of our participants do not have the ability to afford it.

Another question we analyzed in correlation to energy involved in daily activities was asking who the participant's energy provider is. There was a total of 137 responses to this question, shown in Figure 12, resulting in 57% of participants using ICE, followed by CNFL (29%), JASEC (8%), ESPH (4%), Coopesantos (1%), and Coopeguanacaste (1%). We asked this question as it was important to know what the popular providers for energy in Costa Rica were and which were available depending on where one lived. This data demonstrates that the most common provider is ICE, followed by CNFL, which are clean energy providers. In addition, all providers are clean as the energy comes from hydroelectric power, which is important to note that participants are sustainable, even if it is not by choice, in this manner. Another key factor to this question is that switching to clean energy was an initial solution provided by Change Clubs, but all providers are in fact clean.

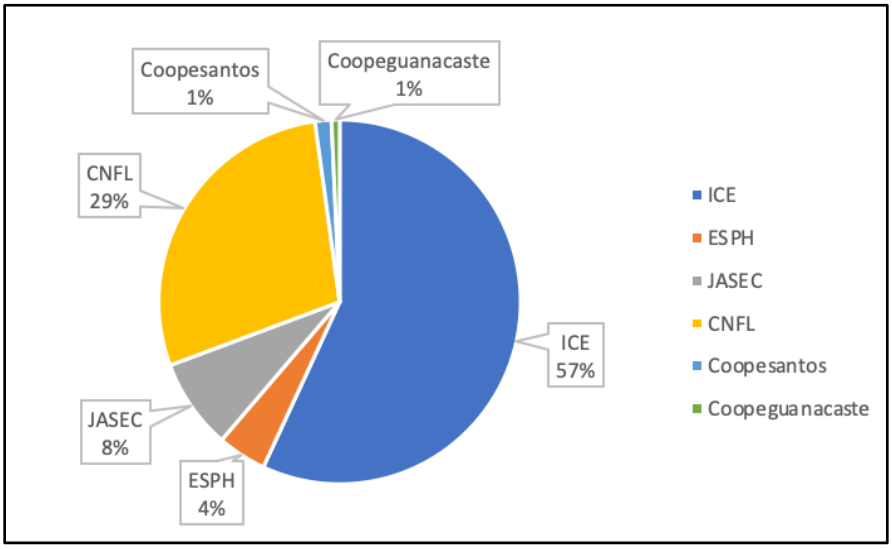


Figure 12: Pie chart demonstrating the various energy providers used by participants in Costa Rica. The responses were: ICE, ESPH, JASEC, CNFL, Coopesantos, and Coopeguanacaste.

In addition, we asked participants whether or not they turn off the lights when leaving a room. Out of 149 responses, 99.3% of respondents answered yes to turning off lights when leaving a room. This question was relevant to one of our objectives as we were able to make a correlation between saving energy in terms of turning off lights and how many people tend to do so in their daily lives. These efforts suggest small-scale sustainability as they are incorporating small actions of saving energy on the daily.

Another question we asked participants about sustainability in their daily lives is how long of a shower they take, on average, and the temperature of their average shower as a follow-up

question. Demonstrated in Figure 13, there were a total of 146 responses that gave a range of answers. On average, more common results were as follows:

- 22 who answered 5 minutes.
- 45 who answered 10 minutes.
- 26 who answered 15 minutes.
- 14 who answered 20 minutes.
- 10 who answered 30 minutes.

This data is relevant to how much water one uses—it can be assumed that the longer they shower, the more water they are using. In terms of the temperature of their showers, there were a total of 147 responses with a result of 52.4% taking warm showers, 24.5% taking cold showers, and 23.1% taking hot showers (Figure 14). With this data, small-scale sustainability can be shown upon the length of the shower in addition to its temperature with how much energy is being used to heat the water. With a longer shower, more water is going down the drain and more energy is being used to heat the water itself. We were able to determine this correlation based on the question's data.

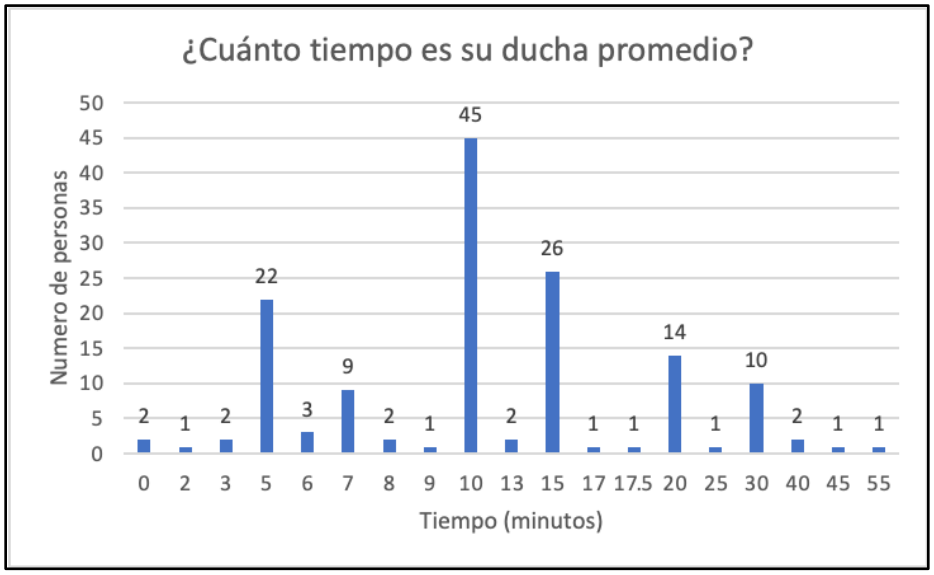


Figure 13: Bar graph demonstrating the shower times by participants in Costa Rica. The responses range from 0 minutes to 55 minutes.

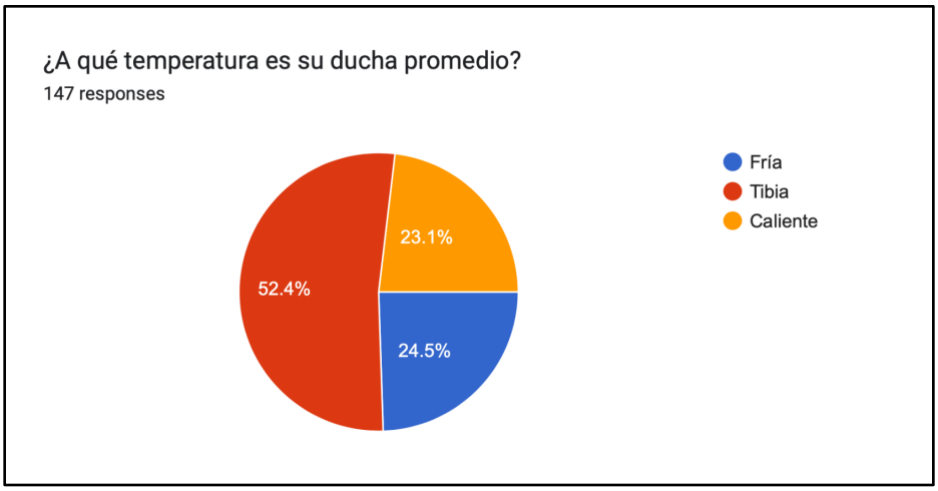


Figure 14: Pie chart demonstrating the average temperature of showers by participants in Costa Rica. The responses were: Cold, Warm, and Hot.

One of the last questions we asked participants in how they use energy in their daily lives is what type of energy they use to cook. In Figure 15, it shows that out of a total of 144 responses, 76.4% of respondents use electricity for cooking while 27.8% use gas for cooking. It can be inferred that depending on their provider and where they live, the type of energy they use is dependent on what they have access to. Due to all providers having clean energy, our team cannot truly conclude on whether or not using gas makes a respondent more sustainable than one who uses electric as one might not have access to a provider with more than one type available.

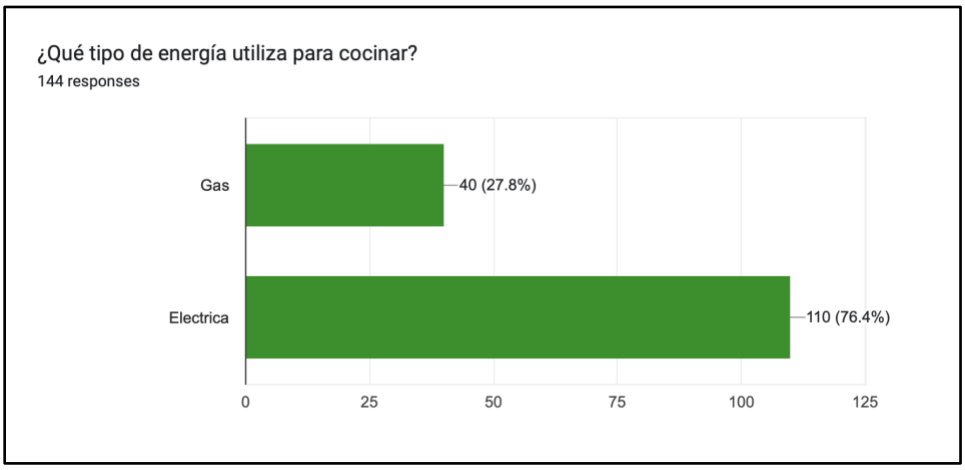


Figure 15: Bar graph demonstrating the type of energy used for cooking by participants in Costa Rica. The responses were: Gas and Electric.

The last question regarding energy and daily activities was to determine the type of energy used for hot water. With a total of 143 responses, 82% of participants answered that they use electric energy for heating their water. As seen in Figure 16, gas followed behind by a large

quantity, where only 8% used it to heat their water. The last portion answered solar heaters and N/A. This data demonstrates that electric energy is much more popular and used by energy providers. It can also be inferred that the type of energy used for heating water is dependent on what is offered to them by their provider.

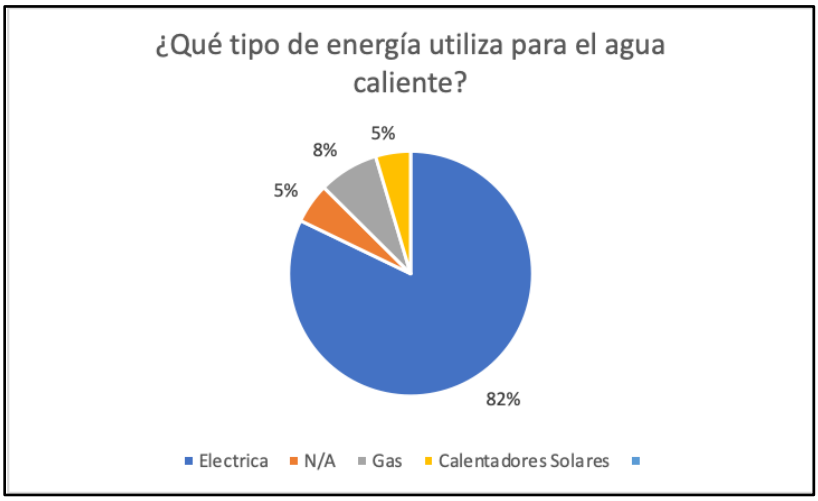


Figure 16: Pie chart demonstrating the type of energy used for hot water by participants in Costa Rica. The responses were: Electric, Gas, Solar Heaters, and N/A.

### 4.3.4 Waste

The next category that Change Clubs is focusing on to make people's lives more sustainable is waste. The topics we went into were recycling, upcycling, compost, and green products. Based on the data from the surveys we can help improve Change Clubs recommendations for the waste module.

We first wanted to understand what percent of the survey respondents recycle to see if it would be something that Change Clubs could expand upon. We found that 76.7% of respondents recycle. Furthermore, the next question asked if they separated their recycling, and we found that 70.9% separate their recycling. When it comes to how their recycling systems work, we received a few different answers. From the information gathered, it seems that there are a variety of recycling systems in use, depending on the geographical location and the institution or community in which it is located. In some cases, the municipality is responsible for the collection and treatment of waste, while in others, the responsibility falls on the company or community. In general, it seems that most people and communities separate waste into different categories, such as organic, paper, plastic, aluminum, glass, etc. Some people mention that they separate these materials into different bags or containers and that the municipality or a recycling company collects them periodically. However, there are also responses about recycling systems that do not work well, and people who indicate that their waste is not properly treated. In some cases, people mention that

organic waste is taken to a farm, while in others, recyclable materials are burned. In general, there is a need to improve and consolidate recycling systems in different communities to ensure proper and sustainable waste management. Giving access to information on how to recycle and how to make it easier might make people more willing to participate.

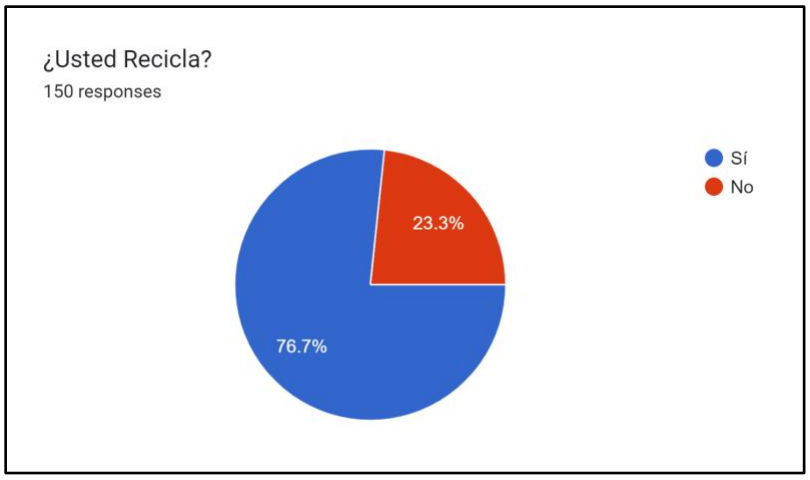


Figure 17: Pie chart demonstrating the answers to if participants recycle. The responses were: Yes and No.

Other forms of recycling were also covered in the survey. We asked respondents if they use recycled water to water their plants and 53.5% use recycled water and when asked time of day, they watered plants 42.5% said in the morning, 16.4% said in the afternoon, 41.8% said at night, and 15.1% did not water plants. Additionally, we asked if they use a reusable water bottle and 90.3% said yes, there is no correlation between economics and education. Providing information on how to recycle your water will not only help people know how to reuse water, but how to use it efficiently, ultimately becoming more sustainable and self-sufficient.

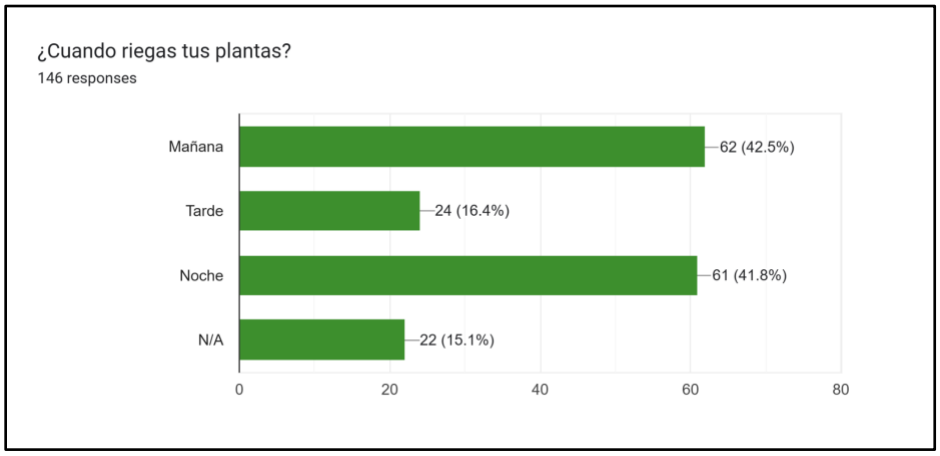


Figure 18: Pie chart demonstrating the answers to what time participants water their plants. The responses were: Morning, Afternoon, Night, and N/A.

We also asked respondents if they recycled their electronics, as well as do they know where to recycle batteries. For the amount of people who recycle their electronics, 54.2% of respondents do not recycle them. We also asked participants if there is a place to recycle batteries close to their house. Out of 143 responses, 46.2% said that there is no place to recycle them, 35% said that they do not know where they can recycle them, and 18.9% said there are places to recycle the batteries. If people responded yes, we asked them a follow up question on where they recycle their batteries. The answers provided are a mix of places, organizations, and individuals that people use to recycle their batteries. Some common answers include recycling centers, municipalities, universities, and retail stores such as Walmart. Other answers include local businesses and institutions that collect recyclable material. A large portion of the respondents mentioned not knowing where to recycle their batteries. If there was more information on where to recycle batteries or how to recycle batteries available, people would be more inclined to recycle them.

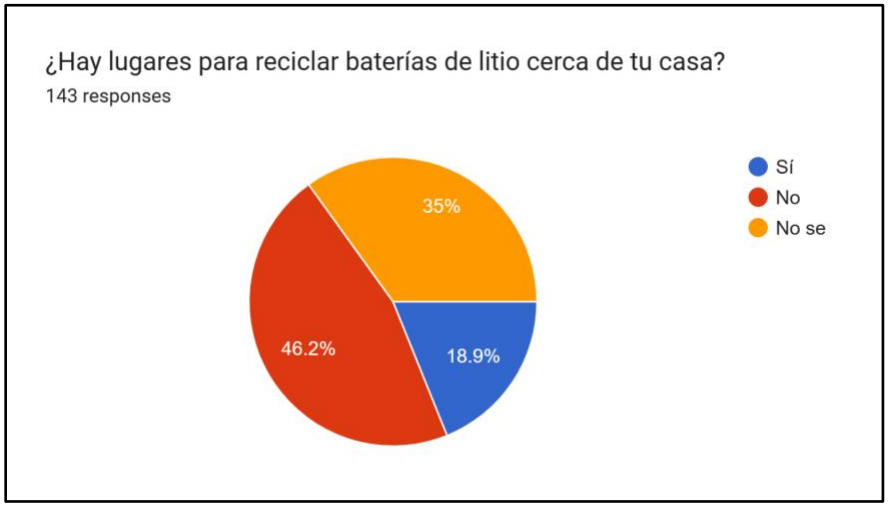


Figure 19: Pie chart demonstrating the answers to are their places to recycle batteries close to the participant's house. The responses were: Yes, No, and I don't know.

Additionally, we asked if the respondents use paper, plastic, or reusable bags while shopping. They responded with 20.4% using plastic, 12.2% using paper, and 82.3% using reusable. We found that people with less income have higher percentages of using non-reusable bags. Respondents within the range of 0-500,000 colones, we found that 22.4% use plastic bags, 15.5% use paper, and 62% use reusable bags. We compared this to respondents with higher wages ranging from 500,000-2 million colones. Out of three respondents, 12.2% use plastic bags, 10.2% use paper, and 77.5% use reusable bags. Demonstrating that using reusable bags are cheaper long term and can be upcycled for other things, would be important to demonstrate in a club setting.

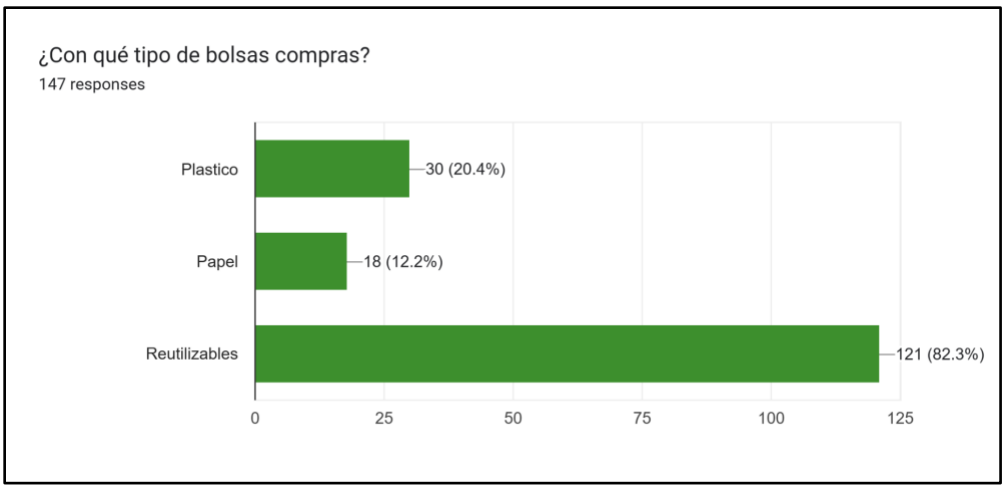


Figure 20: Pie chart demonstrating the answers to the type of bags used. The responses were: Plastic, Paper, and Reusable.

Based on Figure 21, we discovered that 82.8% upcycle. We also asked participants who responded that they upcycle what they make. Some of the answers describe recycling and reusing activities at home and in the community. Some of the actions mentioned include separating recyclable materials, taking them to recycling centers, reusing plastic bags and containers, using old clothes as cleaning cloths, giving clothes to people in need, using cardboard for arts and crafts, making planters and eco-blocks with plastic bottles, and separating and recycling materials in community campaigns. Furthermore, we asked the respondents when things rip or break whether they fix them or throw them out, and 78.5% responded that they fix the broken items. These acts show a commitment to the environment and an effort to reduce the negative impact of waste and debris on the planet. Since most people try to fix their items, suggesting how to fix things or upcycle items would help eliminate as much waste as possible.

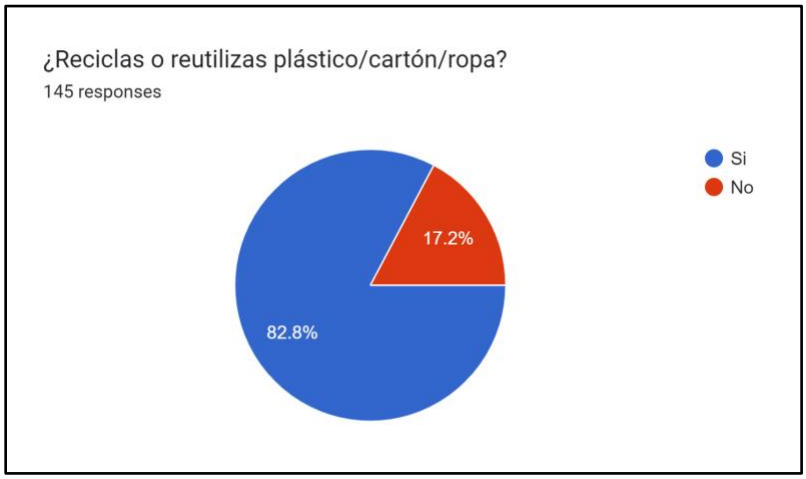


Figure 21: Pie chart demonstrating the answers to if participants reuse plastic/cartons/cloths. The responses were: Yes and No.

We found that only 53.4% respondents know how to compost and out of these people only 28.7% compost. The reasons people give for not composting are lack of space, time, knowledge on how to compost, a preference for other methods of waste disposal, or a lack of resources such as compost bins or materials. As well, some people live in rental properties or apartments where there is not enough space to compost, or they are not interested in doing so. Additionally, other reasons include a lack of a garden or outdoor space, frequent travels, or simply not being well-informed about the process. There are also those who believe that composting has an unpleasant odor or that the traditional method of waste disposal is not composting. Additionally, some people might not compost because they believe it is not a traditional practice in their community or country. To make composting more accessible to different communities, creating an infographic explaining how to properly compost in different housing scenarios would make it easier to do so, especially since almost half of our respondents do not know how to compost at all.

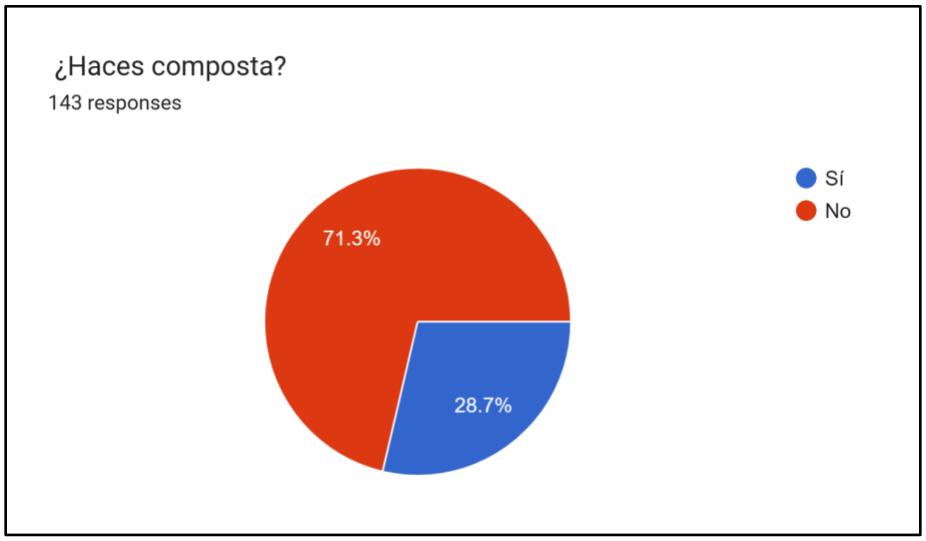


Figure 22: Pie chart demonstrating the answers to if the participants compost. The responses were: Yes and No.

Our team also asked respondents about their food waste habits. Two of the questions we asked them are: (1) Do you eat leftover food and (2) Do you take leftover food home from eating out. Figure 23 demonstrates the pie chart asking if they eat leftover food. Most of the respondents do eat leftover food as 76.9% responded yes. Some of the respondents reuse the food for other purposes as well as composting. However, 18.9% do not eat leftover food which leads to a lot of food waste. We also asked if the respondent's take food home from restaurants and 69% said yes to this. To combat this waste going into the landfill, they could compost it or learn what is safe for animals to eat so the food does not go to waste.

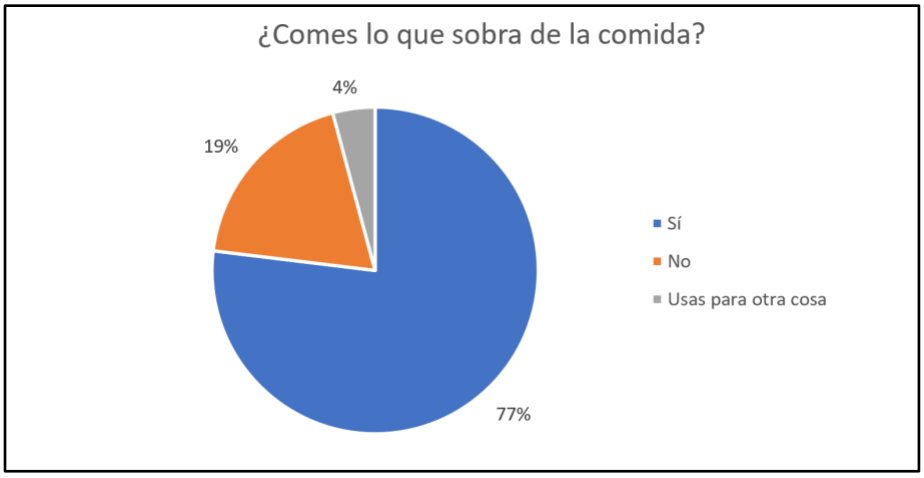


Figure 23: Pie chart demonstrating the answers to if participants eat leftover food. The responses were: Yes, No, Throw it out, Compost, You only have what you need, Feed to the cats, On occasion, There is no leftover food.

In this section, we asked respondents if they buy products with sustainable certification or green products. Below is the pie chart of the respondents' answers (Figure 24). A large portion of the pie chart responded that they occasionally buy green products at 81.4%, always at 11%, and never at 7.6%. This shows that most people occasionally buy sustainable products when they may be available. However, we also asked for their reasoning behind not buying sustainable products. After analyzing the responses, it appears that the main reasons why people are not buying sustainable or green products are due to a combination of factors. Looking at the data, it shows that cost is a major barrier to purchasing sustainable or green products, followed by lack of accessibility and lack of knowledge on how to find them. Additionally, there is a lack of interest among some people in buying these types of products. Making a map of where these products are or what products to look for may help people buy more sustainably.

Figure 24: Pie chart demonstrating if the participants purchase items with sustainable certifications or green products. The responses were: Always, Sometimes, and Never.

### 4.3.5 Diet

Another section that Change Clubs is looking to implement into a more sustainable lifestyle is diet. There are different types of diets and eating habits that can be changed for the benefit of one's health and the environment. We based our survey questions on the suggestions of Change Clubs to help verify if their diet solutions are applicable to Costa Rica.

The first question we asked participants was how often the participants consume red meat on a weekly basis. We had 146 responses to this question resulting in 54% eating red meat 1–2 times a week, 20% eating red meat 3–4 times a week, 14% never eating red meat, 8% eating red meat more than 4 times a week, and 3% 1–2 times a month (Figure 25). The data demonstrates that not many residents eat red meat frequently in Costa Rica. Based on responses from several participants, red meat is not as commonly produced and consumed as it is more expensive compared to other types of protein. There is a clear link between high intake of beef and higher risk for heart disease, cancer, diabetes, and premature death (Harvard Health Publishing, 2020). To add, beef production is resource-intensive and causes greenhouse gas emissions (Waite et al., 2022). To become more environmentally friendly, it is good to eat red meat in moderation. Based on the data, the suggestion could be made to eat less red meat to combat health and environmental risks. We then had the following question: What types of meat people consume in general. As a result, 143 participants responded to the question, resulting in the most common types of meat being consumed are chicken, fish, pig, and red meat. The data in Figure 26 shows that 97.2% of respondents consume chicken, 79.7% consume fish, 69.9% consume pig, and 69.2% consume red meat. The other types of meat consumed by some are lamb, turkey, rabbit, and bull. People do not consume red meat as much as they consume other types of protein. Therefore, suggesting for people to consume less red meat would not be drastically changing their diet but be an attainable change in their daily habits.

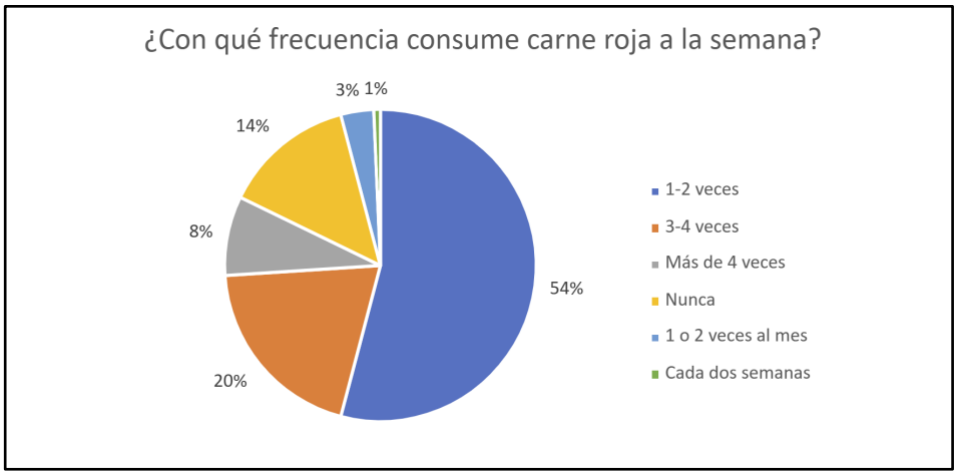


Figure 25: Pie chart demonstrating how frequent participants consume red meat on a weekly basis. The responses were: 1–2 times, 3–4 times, more than 4 times, never, 1 or 2 times a month, and every two weeks.

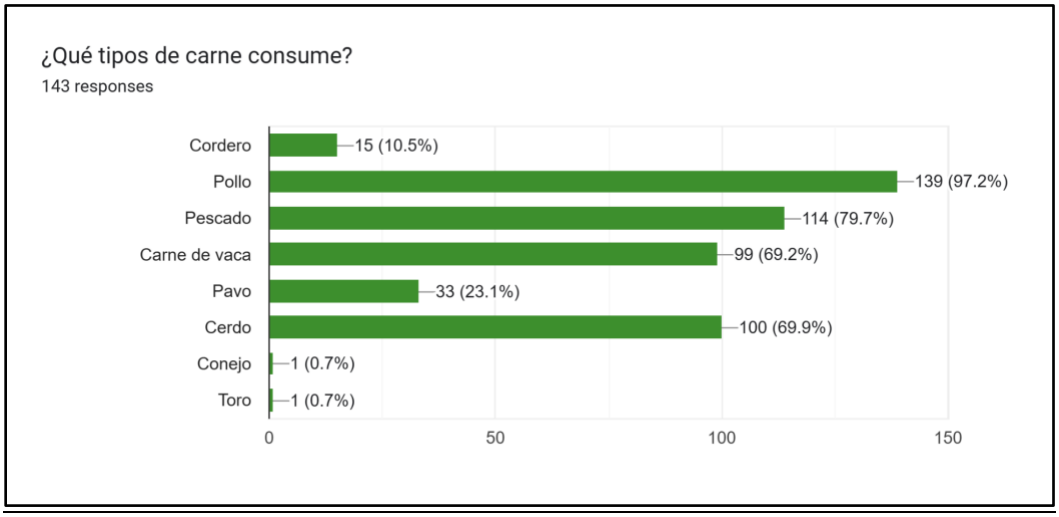


Figure 26: Bar graph demonstrating what types of meat the participants consume. Participants were able to select more than one option. The responses were: lamb, chicken, fish, red meat, turkey, pig, rabbit, and bull. The most consumed meat was chicken at 97.2% of participants.

Another part of the people's diets we wanted to look into was dairy consumption on a weekly basis. Consuming less diary is better for personal health and the environment. We found that 33.3% consume dairy more than 4 times a week, 30.6% consume dairy 1–2 times a week, 29.9% consume 3–4 times a week and 6.3% never consume dairy products. The data demonstrates that there is a wide range of dairy consumption in Costa Rica, and suggestions could be made to change people's diets based on the amount of dairy they consume. We then had a follow-up question on the types of diary people consume. It was found that 138 participants responded to the question, resulting in milk being the most consumed dairy product, where 86.2% consume milk. The second most consumed dairy product is cheese, following butter and then yogurt, as shown in

Figure 28. The data demonstrates which dairy products are consumed the most. From there, suggestions can be made on which products to target to help achieve a healthier, more environmentally friendly lifestyle.

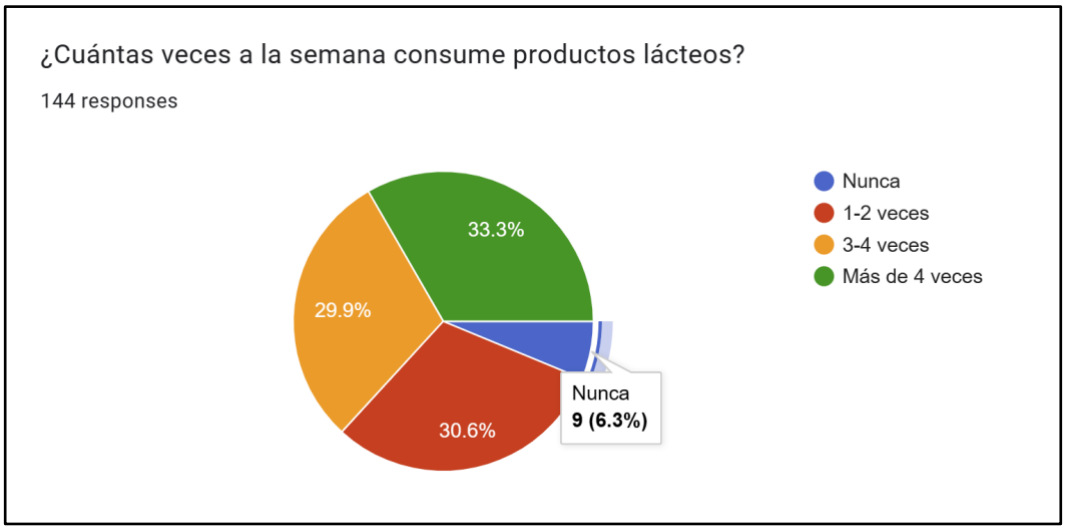


Figure 27: Pie chart demonstrating how frequent participants consume dairy on a weekly basis. The responses were: Never, 1–2 times, 3–4 times, and more than 4 times per week.

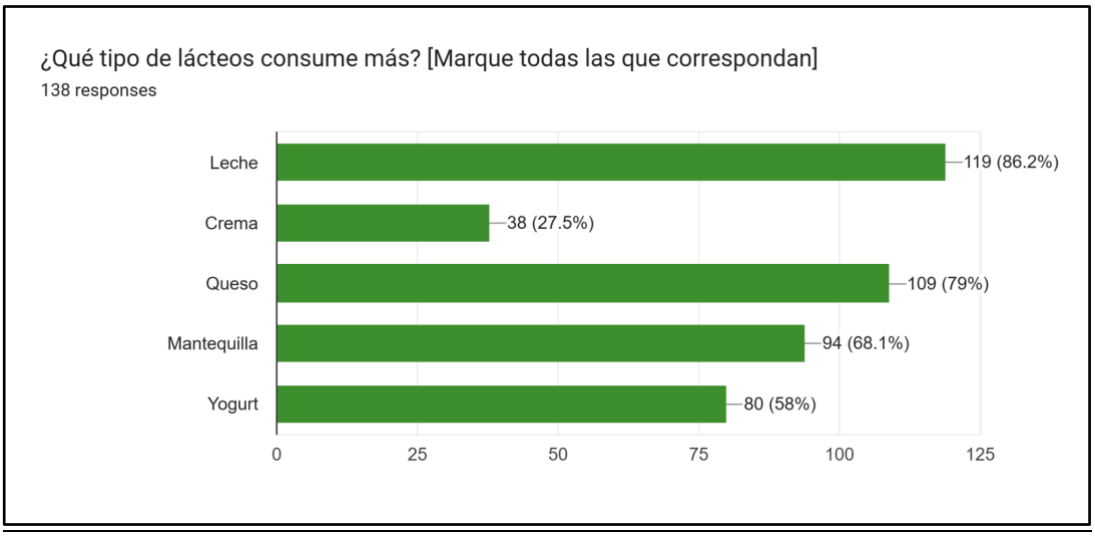


Figure 28: Bar graph demonstrating which dairy products the participants consume the most. Participants were able to select more than one option. The products we asked about were: Milk, Cream, Cheese, Butter, and Yogurt.

We decided to also look at the different types of diets present in Costa Rican culture to see what suggestions could be made to alter eating habits. Overall, we found that 93% of the participants that provided a response have a balanced diet which includes meat and dairy. Only 4% were vegetarian and we found a few participants that are following pescatarian, keto, and

intermittent fasting diets. According to Change Clubs, balanced diets are good in moderation but eating less red meat and dairy is a healthier diet and better for the environment.

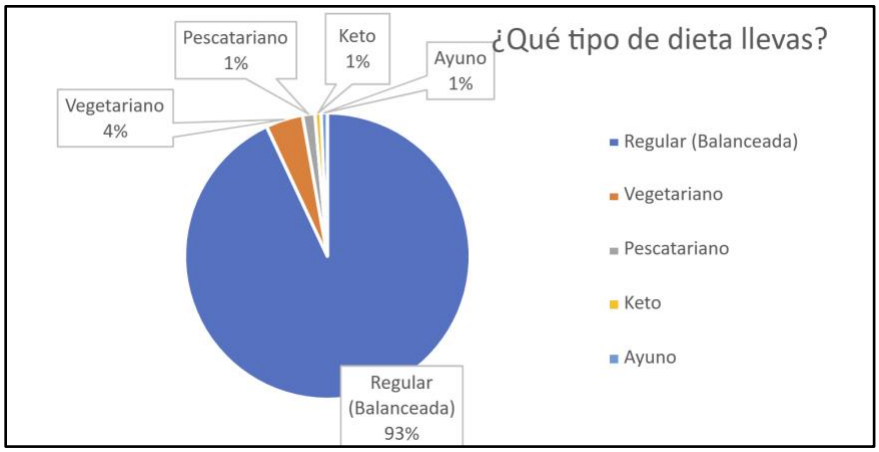


Figure 29: Pie chart demonstrating what types of diets the participants consume. The diets are Regular (balanced), Vegetarian, Pescatarian, Keto, and Intermittent Fasting.

Another aspect of people's diet is where the food comes from. Many people eat out at restaurants and purchase food. Typically, going out to eat is more expensive than making your own food and is not as healthy. After surveying, we found that 67.3% of the 147 participants purchase food out 1–2 times a week, 17% go out 3–4 times a week, and 4.8% go out more than 4 times a week. Based on the amount of people who purchase food out, it can be concluded that by going out less you can save money that can be spent on other things, for instance buying more sustainable products or starting your own garden.

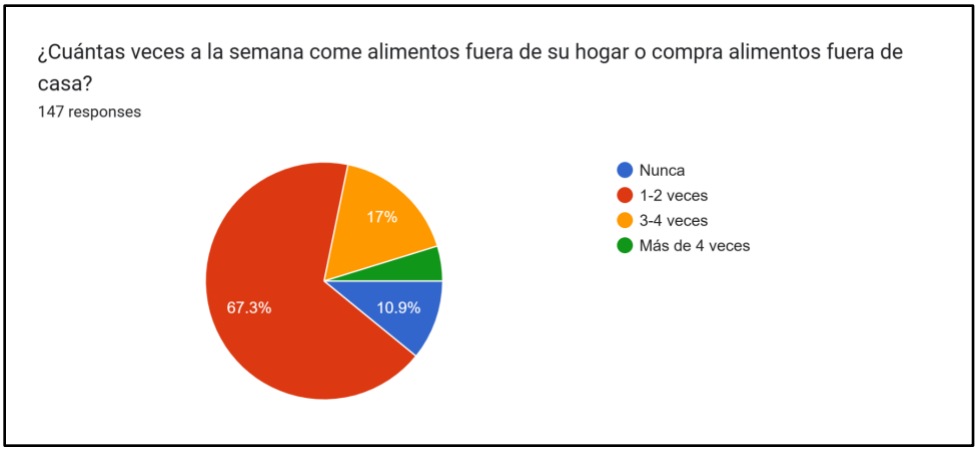


Figure 30: Pie Chart demonstrating how many times the participants eat out and purchase food on a weekly basis. The responses were: Never, 1–2 times, 3–4 times, and more than 4 times per week.

It is also important to consider where people obtain their groceries. We asked if participants purchase from local markets or supermarkets, if they grow their own vegetables, or if they obtain

food from a pantry. The response was that 88.2% shop at grocery stores, followed by 46.5% of respondents purchasing food from local markets. Encouraging people to purchase more often from the local markets and/or grow their own food is healthier and more environmentally conscious. Purchasing from local markets helps the locals make profit and is healthier being fresh and has fewer chemicals. Based on the participants, 81% claimed there was a local market nearby. From personal experience, finding the local markets is the challenge, not many of them are on maps. Furthermore, we found that 6.9% grow their own food. All the people who are selected to grow their own food are students or make an income under 500,000 colones per month. Overall, it is cheaper to grow your own food throughout time. There is an initial cost to setting up your own garden, but there are many benefits to setting it up that counteract weekly or monthly grocery store visits.

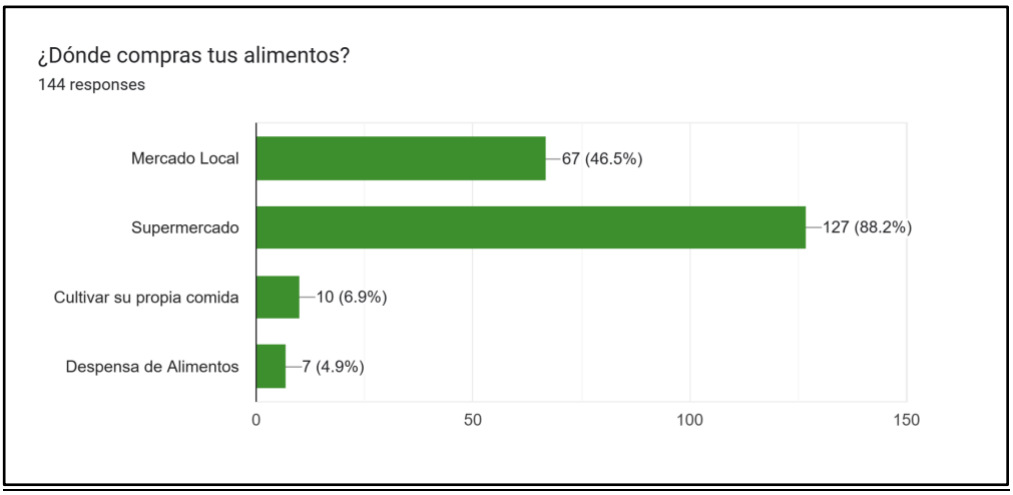


Figure 31: Bar graph demonstrating where the participants purchase their groceries. The participants were able to select more than one option. The options were: Local markets, Supermarket, Grow your own vegetables, and Food pantry.

### 4.3.6 Challenges

For the last question of our survey, we asked respondents to choose from a list of options to see what kept them from acting sustainable. This question held significant importance, as our team was able to obtain a more personal answer from respondents on why they might not be as sustainable as they have the potential to be. There was a total of 129 responses, results showed:

- 55% of participants—There is a lack of other, more sustainable options.
- 38% of participants— Sustainability is too expensive.
- 17.1% of participants— Unaware of environmental issues.
- 14.7% of participants—Cannot break old habits.
- 13.2% of participants— Unable to see a tangible impact in my community.

- 4.7% of participants—Do not believe in climate change.

This data shows that the majority of people (55%) feel that there is a lack of other, more sustainable options. This is followed by the response that sustainability is too expensive (38%). In addition, an education trend can be found among those who don't believe and their level of education—being at preschool level. A lack of knowledge on factors around climate change has an effect on whether or not people support or believe in acting sustainable. This data allows our team to pinpoint the factors of sustainability that prevent some from becoming a part of it. In this case it is mostly due to a lack of other options and these other options being too expensive for our respondents to partake in, as well as the lack of knowledge.

### 4.3.7 Follow-up Survey Responses

At the end of our survey, we asked participants if they would be interested in answering some additional and follow-up questions to their survey responses (Appendix B). We were able to receive responses from four people. From the responses, we were able to get insight on the challenges to being sustainable in Costa Rica and gauge interest from the public in joining a sustainability club. The first topic expanded on was waste. With regard to the recycling system, the respondents showed that there is an overall confusion with the recycling system. For example, they do not know how to separate their recycling, or the systems are confusing in local neighborhoods. However, the participants are interested in learning how to recycle their garbage and make less waste. Additionally, those who said they do not know how to compost or grow their own food would like to learn how to do so. The respondents would also like to know where they can buy green products or how to determine if the products are sustainable. The respondents gave some recommendations for climate action such as lower costs for sustainable products, awareness campaigns, and fines for littering. The next section discussed in the follow-up survey was gauging interest in joining a sustainability club. Every respondent said joining a sustainability club would help them be more sustainable. Furthermore, they suggested that the Change Clubs app includes a guide to sustainable producers as well as contact information, so they can easily access greener products. Additionally, they suggested that the Change Clubs should advertise who they are and what they do. People are more likely to join the Change Clubs if they have more knowledge on the organization. The last section discussed in the follow-up survey was challenges of becoming more sustainable. The respondents said some of the challenges of being sustainable in Costa Rica are cost, transportation, lack of environmental education in metropolitan areas, and people polluting the rivers and roads. Additionally, some specific challenges of the participants are poor habits and lack of knowledge on where to bring the recycling. The participants generally responded that the lack of sustainable options and being unable to see tangible impact in the community impedes them from acting sustainably.

# Chapter V: Recommendations

In this chapter, we propose recommendations that will help Change Clubs adapt their current sustainability solutions along with implementing concepts of group motivation and dynamics to their pilot club. We chose these recommendations after carefully analyzing all of the data gathered from research, surveys, and interviews done while in Costa Rica. Our recommendations will provide Change Clubs with accurate data that can be implemented towards their organization and improve the overall outcome of the first Change Clubs.

## 5.1 Psychology and Group Motivation: Recommendations

Based on several studies and research, the following recommendations were found to assist Quantum Leap and Change Clubs in tackling the psychological barriers of climate action for their club and app. The Change Clubs app would benefit from a point system to encourage people to participate in individual sustainability activities. Implementing different levels on the app that can be reached once the goal number of points is accomplished can appeal to people's need for personal accomplishment. A sector of a social app that would allow one to see individual progress and contribution to sustainability would allow one to feel more powerful in their personal contribution. By having the club recognize everyone's levels or state what level members are on in the weekly/monthly meetings, the members can witness other people progressing. This will encourage them to act more sustainable. Change Clubs could also implement a reward system in which the highest points and/or level by the end of the month receives a prize. The prize could be merchandise for the organization such as t-shirts, tote bags, or hats. This would allow the organization to advertise and incentivize members to be more sustainable. However, by rewarding too often, there will not be long-lasting changes in members' habits or behavior towards sustainability. Therefore, a balance in rewarding needs to be established to motivate participants and create change.

We recommend that Change Clubs find factual statistics to demonstrate that the majority of society is following sustainable steps to encourage what is known, that people will follow the social norm and become more sustainable. This could be done by making a social networking section on the app where members compare points and levels with each other. The app could tell Change Clubs members where they stand in comparison to friends and family, as well as on a global level. Change Clubs could allow members to make friend requests and create a community of like-minded individuals. By stating which percentile, the members stand in comparison to the rest of the members on the app, the club can appeal to friendly competition and the desire to be included can make one feel responsible for not acting.

The Change Clubs app content and club materials should make the sustainable option, the goal of the task. If tasks are not completed, then points could be deducted through the point system.

To do this, Change Clubs should leave out the unsustainable option on the app or when discussed in the club, and only present the sustainable option. In addition, Change Clubs should encourage people to talk to local governments to remove the unsustainable option from the local community.

Another challenge to becoming more sustainable is that the consequences of consumption are often hard to see. By using a point system, members can keep track of their consumption. By telling people how much of a resource is being saved, members feel a sense of accomplishment. A way this can be incorporated into Change Clubs is to include information on the average consumption of energy and provide information on how to check electric gauges in homes to become more aware of consumption.

A recommendation our team offers to counter climate change denial is to find an activity that members share in common or identify with. Change Clubs should then discuss with members how the activity will be affected by climate change. Using this technique makes the discussion and the climate issue more personal. Additionally, it makes members feel that they have a responsibility to make an effort towards combating the climate crisis. Making the issue personal will also help the Change Clubs members stay motivated for their own personal gain since the activity they enjoy is being affected.

Change Clubs should take gradual steps when they provide information to their members in order to not overwhelm them with information. By making the Change Clubs material and app simple and easy to learn, various education levels can learn how to become more sustainable and larger groups of people can get involved. In addition, Change Clubs should keep members fully updated on actions taken and suggested by scientists and the government in order to keep people updated on what should or should not be trusted. This updated local information on politics and legislation about climate change will allow members to gain trust in the scientific and educational information being given to them, without daunting ideas making them feel powerless.

Change Clubs should allow an option for open conversations or the expression of anonymous concerns. Doing so would give members a support system and could bring more action because members would know that they are not alone. Providing education that can be offered at a preferred pace, keeping members updated on scientific and political information constantly, and creating a support system where people can communicate regarding actions towards climate change can counteract the mental barriers to climate action among Change Clubs members.

## 5.2 Organization Interviews: Recommendations

Based on the interviews from the seven organizations we reached out to and received responses from, we were able to make the following recommendations.

(1) We recommend that Change Clubs emphasize communication, transparency, consistency, leading by example, and care for people to make a community in keeping people engaged and motivated.

(2) We suggest that Change Clubs hold more casual meetings that occur at local cafes or restaurants. To help emphasize a sense of belonging to all the participants, Change Clubs should emphasize collaboration and once again, communication.
(3) Our team suggests that using Google Forms and keeping track of the number of people involved is important to note in order to make improvements on keeping people engaged.
(4) The most common tools for communication used by these organizations were Slack, Trello, Asana, WhatsApp, Google Forms, social media, and their websites. We recommend that Change Clubs implement these tools to best communicate with their members and increase engagement across the internet.

### 5.3 Survey Data: Recommendations

Quantum Leap is looking for confirmation on whether their sustainability tips in four distinct categories are applicable to Costa Rica. In our background we discussed what Costa Rica is doing to become more sustainable, but we wanted to look more closely at how the people living there can become more sustainable across different topics such as mobility, energy, waste, and diet. We then confirmed or denied the small-scale sustainability options that Quantum Leap provided based on the survey results and gave them recommendations for each of the four topics.

#### 5.3.1 Mobility

Our results showed that public transportation, especially buses and trains, are accessible in almost all of Costa Rica. However, not everyone uses this mode of transportation due to safety, accessibility, schedule, and distance. In order to address this problem, we recommend that Change Clubs teach people the different routes available as well as tips when using public transportation.

From the data gathered in this section, we found that although sidewalks are accessible in the majority of Costa Rica, bike lanes are not as accessible since only 23.6% of the respondents answered that they had access to bike lanes. We recommend that Change Clubs adapts the biking solution in the mobility section so that more people can follow the solutions provided.

We also suggest that in this section, to add a solution about carpooling as we found that 34% of people already carpool to work/school. Based on our results we believe that this change can have a large impact on small-scale sustainability while still being plausible for many people. Finally, we propose that Change Clubs remove the proposal about flying less often because we found in our survey data that most people never fly or if they do it is only very sporadic.

#### 5.3.2 Energy

Based on our surveys, our team was able to determine energy actions that could be altered to be more sustainable in the everyday lives of those who live in Costa Rica. In terms of energy in households, our data shows that a decently high number of participants use LED lights (77%)—

suggesting that out of the respondents the majority use more energy efficient light bulbs. As for the other 23%, Change Clubs should maintain the recommendation for the transition from other light bulbs to LED in order to promote small-scale sustainability. This transition should be feasible among populations as it may seem like a small difference, but energy will be saved over time. Another energy recommendation in households is the use of solar panels and smart home control. Our data shows that owning solar panels and smart home control was not popular, in fact at least 94% of respondents answered *no* to both questions. With these results, we recommend that Change Clubs alter their recommendation—rather than saying buy solar panels or get smart home control, they should recommend cheaper alternatives or other ways of sustainability. These recommendations, as is, are simply not feasible for everyone to follow.

In terms of energy being used in daily activities, we found that all energy providers are clean and use hydroelectric power. Most participants used ICE (57%) and CNFL (29%) in Costa Rica, and the recommendation by Change Clubs was to change to a clean electricity provider. However, since we found that all providers are clean in Costa Rica, we recommend the alteration of this recommendation to be geared more towards learning about your electricity provider and their impact on the environment. In addition, we asked respondents whether or not they turned off the lights when leaving a room. Our data resulted in 99.3% of participants answering yes to this question. Based on this data, we recommend that Change Clubs keep the proposal of turning lights off *as a reminder* since it is truly important, and it is evident that even small—not everyone does it.

Another section of energy used in daily lives is supported by asking respondents how long their average showers are and the temperature of them. The most common response was 10 minutes, where 45 people answered this was their average shower time. In addition, most take warm showers, and a small number of people take hot showers. The data shows that most participants were less inclined to take longer showers and did not use a lot of hot water. Based on this data, we recommend that Change Clubs adds a proposal to lessen shower times *and* lower water temperature as much as possible due to receiving a sufficient amount of shower times above 20 minutes. By doing this, Change Clubs could encourage people to be more aware of how much water they are letting go down the drain and how much electricity is being used to heat the water they are using.

The last section of energy in daily activities was asking participants what type of energy they used for cooking and for hot water. In terms of cooking, we found that electric energy was much more popular than gas, and the same statement can be made for hot water. Gas followed after electricity, but it did not come close. Because electric energy is so prominent in Costa Rica, Change Clubs should make a recommendation based on how much electric energy is used towards things such as heating rather than using a different form of energy. In addition, it is important to note that due to availability, clean energy providers are determined by where one resides, and it

might not particularly be by choice. A provider might offer electric and gas, while another might only offer one type. Based on this, we want to re-emphasize and make a recommendation to encourage others to learn more about an energy provider and to become more aware of how much heat is being used for daily activities—those that could easily become more sustainable in communities.

### 5.3.3 Waste

Another category that Change Clubs is looking to promote for a more sustainable lifestyle is waste. From our data in Section 4.3.4, we know that most Costa Ricans recycle by separating paper, glass, cans, and plastic in the larger areas. We recommend that the app includes how to recycle in more rural areas since that is where people are more likely to burn the trash. As well, pinpointing recycling will help members be able to recycle more easily, knowing that it has a place to go. Providing access to information on how to recycle and how to make the process easier might make people more willing to participate. Additionally, for recycling water, about half of participants reused water. Providing infographics or classes on different ways to reuse water will help eliminate water waste in communities. To add to the previous thought, providing information on how to recycle your water will not only help members know how to reuse their water, but also show them how to use it efficiently. Ultimately, this allows members to become more sustainable and self-sufficient. We also asked respondents if they recycled their electronics; as well as do they know where to recycle batteries. Over half of respondents do not recycle electronics, and around half said that there is nowhere to recycle batteries. If there was more information given on where to recycle batteries or how to recycle batteries, members would be more inclined to recycle them. We also asked if the respondents use paper, plastic, or reusable bags. We found that people with lower incomes tend to not use as many reusable bags. By having Change Clubs provide information on why going reusable for shopping bags is not only beneficial to the environment, but also in the long term more economical could greatly influence small-scale sustainability among individuals.

The second topic within the waste category on the survey is upcycling. Based on the survey data, numerous respondents upcycle. We also asked them the question of when they upcycle, what they make with it. It was found that they reused plastic bags and containers, used old clothes as cleaning cloths, gave clothes to people in need, used cardboard for arts and crafts, made planters and eco-blocks with plastic bottles, and separated and recycled materials in community campaigns. By having Change Clubs do upcycling activities it would be an easy way to teach them how to upcycle while having fun. As well, having videos available on the Change Clubs website on how to upcycle certain products will help the members reuse items that they would otherwise throw out.

The third section covered in waste is composting. The reasons people are not composting are due to a lack of space, time, knowledge on how to compost, a preference for other methods of waste disposal, or a lack of resources such as compost bins or materials. During Change Club meetings and on the app, we recommend that information on how to compost properly is available as well as how to compost inside—so people in different living situations can participate. We suggest that the Change Clubs app should include information on what you can do with compost as some participants thought there isn't much use to doing it, which evidently deters people from participating. Making the information easy to access will make members more willing to participate, as well as other people in the community.

In this section, we asked respondents if they buy products with sustainable certification or green products. Data showed that most people buy sustainable products *sometimes*. Waste-free products such as food in glass containers and reusable bags are hard to come by, and usually they are more expensive. This leads to deterring locals due to the high costs. Looking at the data, it showed that cost is a major barrier to purchasing sustainable or green products, followed by lack of accessibility, lack of interest, and lack of knowledge about what to look for. To combat this, we recommend that Change Clubs should give locations with more sustainable stores and restaurants. Lastly for waste, we recommend that the app have sections on how to grow your own food, which should eliminate plastic waste entirely as it is one of the most sustainable practices.

### 5.3.4 Diet

Our last main topic we focused on in our surveys was the diet and consumption of dairy and meat products in people's daily lives. We were able to determine recommendations for Change Clubs based on their information provided and the results from our survey.

We found that 54% of the participants consume red meat 1–2 times on a weekly basis. We also found that the most consumed meat is chicken and fish, which demonstrates that Costa Ricans consume other types of proteins more often than red meat. Change Clubs could suggest that people should consume less red meat. However, the suggestion would not be drastically changing their diet but be an attainable change in their daily habits.

We then asked about the participants' dairy consumption. We found that most participants consume dairy 3–4 times a week, or more than 4 times a week. As well, the responses showed that various dairy products were consumed frequently which includes milk, cheese, butter, and yogurt. We recommend that Change Clubs use the data to suggest alternatives to the common dairy products people consume. Overall, the information verifies the Change Club's solution to consume less dairy for a more sustainable lifestyle.

According to Change Clubs, balanced diets are good in moderation, but eating less red meat and dairy is a healthier diet and better for the environment. We found in our survey that 93% of people eat a regular, balanced diet. The data supports the Change Club's suggestion for people

to try making vegetarian or vegan meals a few days a week. Change Clubs plans on providing recipes for vegan and vegetarian diets to give ideas to their members.

We then asked questions about people's going out to eat and their food shopping habits. We found that the majority of the people we asked went out 1–2 times a week to purchase food. Based on the amount of people who purchase food out, Change Clubs should suggest that by going out less you can save money that can be spent on other things, for instance purchasing sustainable products or starting your own vegetable garden. Change Clubs is already encouraging people to cook and share meals together but demonstrating how much people can save by not going out would help members visualize other actions that can be taken with that money.

Our team then asked where people purchase their groceries; the highest response was grocery stores, followed by local markets—only 6.9% grew their own food. Afterward, we asked a follow-up question and found that almost all the participants claimed that there was a local market nearby. Change Clubs currently suggests growing your own food and buying local produce. However, we recommend including further information to help show the members the benefits of participating. Change Clubs should provide locations of local markets nearby and explain the benefits in saving money, supporting local farmers, and purchasing healthier products with fewer chemicals within. As well, Change Clubs could provide detailed instructions on how to grow your own food and demonstrate how much money you can save overtime by starting your own garden.

Overall, the suggestions provided by the Change Clubs in regard to diet were mostly accurate. However, more information could be provided to ensure that the participants see the health and environmental benefits to changing their diet habits.

### 5.3.5 Challenges

The last component of our surveys asked participants to select the reasoning closest to what keeps them from acting sustainable. This question was used to determine, overall, what stands in their way of sustainability in their lives. Our data shows that more than half of participants feel that there is a lack of other, more sustainable options. This is followed by participants answering that sustainability is too expensive. Based on these results, our team recommends that Change Clubs implement a sector that allows people to see other, more sustainable options/products that could be available around them. We recommend that Change Clubs suggest cheaper alternatives to their audience in order for people to have more confidence in changing their habits. Some people might not be aware of some products that could end up essentially being cheaper than their current habits.

Other responses to this question were the reality of being unaware of environmental issues, cannot break old habits, unable to see a tangible impact in my community, and do not believe in climate change. Our team feels that a suggestion can be made that covers these responses as a whole. Because most of the responses stem from a lack of trust and knowledge about the subject,

education is vital. The reasoning to this can be found above in our Results and Analysis Chapter. Participants gain trust by knowing what environmental issues are occurring and actively impacting them. In addition, seeing what their individual impacts are will allow people to feel more comfortable with change. After looking at what challenges our participants face, we recommend that Change Clubs provide educational modules on environmental issues, breaking old habits, individual impacts, and why climate change is a larger issue.

### 5.3.6 Follow-Up Survey Responses: Recommendations

Based on our follow-up survey questions, we found that the participants have interest in joining a sustainability club and produced the following recommendations for Change Clubs. We suggest that the Change Clubs app includes a guide to sustainable producers as well as contact information, so members can easily access greener products. Additionally, we suggested that the Change Clubs advertise who they are and what they do. People are more likely to join the Change Clubs if they have more knowledge about the organization. The rest of the responses further back up our recommendations in the previous sections.

## 5.4 Future Work

Throughout the project, we found some limitations that included the amount of people and organizations we were able to interview, and the amount of people per province surveyed. We recommend that for future work, organizations be contacted earlier, weeks before arriving in Costa Rica—that way the team can reach out to more organizations in case organizations are not willing to participate. With more organizations, we would have been able to make stronger comparisons with our data, and possibly gather more advice for Change Clubs. Based on our research data from surveys, we advise keeping the surveys as simple as possible since we did not get many follow-up responses from the surveys, and most people were not willing to set up a meeting. If surveys had been simpler or quicker, we might have had a higher yield of follow-up responses from the surveys—but this is hard to tell. In addition, we advise trying to survey the same amount of people per province in Costa Rica. To achieve this not only would it be important to travel to all the provinces but also to make sure the people being surveyed live in that specific province. By doing this, we would have been able to have more definitive data where all provinces were covered in addition to them being covered equally in terms of comparison. Although we covered most groups, having more surveys from older age groups would allow us to better correlate whether an older age leads to a difference in sustainability habits. To finish, we recommend gathering more data and surveys from lower-income individuals, specifically in more remote areas so that Quantum Leap can reach these audiences successfully. In this case, we would have been able to make larger comparisons between income and how sustainable an individual is, including whether their ability to afford certain items keeps them from being sustainable or encourages it.

# Chapter VI: Conclusion

The goals of our project were (1) to provide methods to keep groups engaged, motivated, and build up the Change Clubs initiative, (2) to verify a set of tropical climate solutions and provide recommendations to modify the content of the Change Clubs app, and lastly (3) to identify any other contributing factors and obstacles to climate action. Through our project objectives, we were able to perform extensive research on group dynamics and motivation and identified patterns in small-scale sustainability among individuals in Costa Rica through surveying. We were able to verify the solutions provided by Change Clubs and provide recommendations on group psychology through research and interviewing sustainability groups. The guidelines provided will help Change Clubs achieve their goal in creating the first Change Clubs in Costa Rica. Our findings and recommendations can also be applicable to other sustainability groups and Change Clubs groups, if necessary, as we were able to provide findings based on group psychology and motivation among groups in general. We hope that our findings help Change Clubs gain and encourage members to reduce their carbon footprint and environmental impact that individuals carry in their daily lives.

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# Appendix

## Appendix A: Survey Questions: (Paper) Sustainability Recommendations

Link for the Raw Survey Data: Raw Survey Data

Note: Both English and Spanish versions are provided.

### Sustainability Survey - WPI

We are college students from Worcester Polytechnic Institute, and we are gathering data about individual sustainability habits in Costa Rica. By filling out this survey, you consent to having your responses used for our study. Information will remain **anonymous** (personal identification will not remain). This survey should take approximately 5-10 minutes to complete. Thank you for your time.

1. How old are you? _____
2. Where are you from (country)? _____
3. What neighborhood do you live in? _____
4. Do you live in an apartment/house/other? _____
5. How many people do you live with? _____
6. How much do you make roughly annually? _____
Student 300 mil-500 mil 500 mil-700 mil 700 mil- 1 million 1 million- 2 million 2 million +
7. Education level (current)
   - ☐ Initial
   - ☐ Primary
   - ☐ Secondary
   - ☐ College/University (Associate, Bachelor)

**Mobility**

1. If you commute to work, how do you get there? [Select all that are applicable]
   - ☐ Internal combustion vehicle (standard cars, SUVs, and trucks)
   - ☐ Electric vehicle (car)
   - ☐ Electric vehicle (bike or smaller)
   - ☐ Walking
   - ☐ Biking
   - ☐ Train
   - ☐ Bus
   - ☐ Taxi Service
   - ☐ App Service
   - ☐ Other _____
2. If you use a car, do you carpool to work?
   Yes or no

3. Circle all that apply: What modes of public transportation do you have access to in your area?
   a. Sidewalks
   b. Bus System
   c. Bike lanes
   d. Train system
4. If you do not use public transportation, why?
_____

5. How often do you fly (on average)?
Never Once a year Once in 6 months Frequent traveler

**Energy**

1. How long and at what temperature is your average shower? Time: _____ (minutes)
Temp: Cold Lukewarm Hot Scorching hot

2. What kind of light bulbs do you have in your living space?
   - ☐ LED
   - ☐ Incandescent
   - ☐ Other _____
3. Do you turn off your lights when you leave a room?
   Yes or No
4. Do you have smart home control? Yes or No
5. Do you have solar panels? Yes or No
6. What kind of energy do you use for hot water? [Circle which applies]
   Gas electric solar water heaters
Who is your energy provider? _____
7. What kind of energy do you use for cooking?
   Gas electric

**Waste**

1. Do you recycle? Yes or No
2. Do you sort your recycling? Yes or No
3. How does the recycling system work?_____
4. Do you know how to compost? (food waste, paper)
   Yes or No
5. Do you compost? Yes or No
If not, why? _____
6. Do you upcycle or reuse plastic/cardboard/clothes?
   Yes or No
If yes, what do you make? _____

7. What kind of bags do you shop with? [Circle]
   Bring your own Use whatever they have

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8. I buy products with sustainable certifications or green products.

Always Sometimes Never

If not, why? [Check all that apply]

- ☐ Not accessible (store does not carry sustainable products)
- ☐ Too expensive
- ☐ I do not know what to look for
- ☐ Not interested

9. When things break/rip do you throw them out or fix them? [circle below]

Throw out fix

11. Do you eat leftover food? Yes or No

12. Do you take home leftover food from eating out?

Yes or No

13. Do you use recycled water to water your plants?

Yes or No

14. When do you water your plants? [Select all that apply]

N/A Morning Day Night

15. Do you recycle your electronics? Yes or No

16. Are there places to recycle Lithium batteries nearby?

Yes No I'm not sure

If yes, where? _____

**Diet**

1. How often do you consume red meat on a weekly basis? [Circle best answer]

None 1-2 per week 3-4 per week More

2. What type of meat do you consume? [Select all that apply]

a. Lamb
b. Chicken
c. Fish
d. Beef
e. Turkey
f. Pig
g. Other _____

3. How many times a week do you eat food outside your home or purchase food out?

- ☐ None
- ☐ 1-2 times a week
- ☐ 3-4 times a week
- ☐ More

4. Where do you get your groceries?

a. Local market/farmers market: If so which _____
b. Grocery store: If so which _____
c. Grow your own food
d. Food Pantries

5. Is there a local market nearby? Yes or No

6. Do you own a reusable water bottle? Yes or No

7. How many times a week do you consume dairy products?

None 1-2 times a week 3-4 times a week More

8. What type of dairy do you consume? [Select all that apply]

a. Milk
b. Cream
c. Cheese
d. Butter
e. Yogurt

9. What kind of diet do you eat?

a. Regular diet [meat eater]
b. Pescatarian
c. Vegetarian
d. Vegan
e. Other _____

**Challenges**

1. What keeps you from acting sustainably? [Select all that are applicable]

- ☐ Unaware of environmental issues
- ☐ Unable to see a tangible impact in my community
- ☐ Do not believe in climate change
- ☐ Lack of other, more sustainable options
- ☐ Cannot break old habits
- ☐ Sustainability is too expensive

If you were interested in a more in depth interview, please leave your **name** and **email address (or other similar contact)**

_____
_____

**We thank you for your time spent taking this survey. Your response has been recorded.**

# Encuesta de Sustentabilidad en Costa Rica - WPI

Somos estudiantes universitarios de Worcester Polytechnic Institute y estamos recopilando datos sobre los hábitos individuales de sustentabilidad en Costa Rica. Al completar esta encuesta, usted acepta que sus respuestas se utilicen para nuestro estudio. La información permanecerá anónima (la identificación personal no permanecerá). Completar esta encuesta debería tomar aproximadamente 5-10 minutos. Gracias por tu tiempo.

1. ¿Cuántos años tienes? _____
2. ¿De dónde eres? (País) _____
3. ¿En qué barrio vives? _____
4. ¿Dónde vives? apartamento casa
otro_____
5. ¿Con cuántas personas vives?_____
6. ¿Cuánto gana aproximadamente al mes?
Estudiante 300 mil-500 mil 500 mil-700 mil 700 mil-1 million 1 millón- 2 millones 2 millones +
7. Nivel de Educación (Actualmente)
   - ☐ Preescolar
   - ☐ General Básica
   - ☐ Diversificada
   - ☐ Superior

**Movilidad**

1. Si vas al trabajo/escuela, ¿cómo llegas allí? [Seleccione todos los que sean aplicables.]
   - ☐ Vehículo de Gasolina
   - ☐ Vehículo Eléctrico
   - ☐ Bicicleta Eléctrica
   - ☐ Bicicleta
   - ☐ Caminando
   - ☐ Tren
   - ☐ Autobús
   - ☐ Taxi
   - ☐ Aplicación de transporte (Uber/Didi/otro)
   - ☐ Otro _____
2. Si usa un automóvil, ¿comparte el automóvil para ir al trabajo?
   Si o No
3. ¿Qué modos de transporte público tiene acceso en su área? [Seleccione todos los que apliquen]
   a. Acera
   b. Autobús
   c. Carril para Bicicletas
   d. Tren
4. Si no utiliza el transporte público, ¿por qué?
5. ¿Con qué frecuencia viajas en avión?
Nunca Una vez al año Cada 6 meses Viajero Frecuente

**Energía**

1. ¿Cuánto tiempo es su ducha promedio?
   Tiempo: _____(minutos)
¿A qué temperatura es su ducha promedio?
Temp: Fría Tibia Caliente

2. ¿Qué tipo de bombillas tienes en casa?
   - ☐ LED
   - ☐ Incandescente
   - ☐ Otro _____
3. ¿Apagas las luces cuando te vas? Si o No
4. ¿Tiene control de casa inteligente? Si o No
5. ¿Tiene paneles solares? Si o No
6. ¿Qué tipo de energía utiliza para el agua caliente?
Seleccione todos los que sean aplicables.
Gas Electrica Calentadores Solares
¿Quién es su proveedor de energía? _____
7. ¿Qué tipo de energía utiliza para cocinar?
   Gas Electrica

**Basura**

1. ¿Usted recicla? Si o No
2. ¿Usted separa su basura? Si o No
3. ¿Cómo funciona su sistema de reciclaje?_____
4. ¿Sabes como compostar? (residuos de comida, papel)
   Si o No
5. ¿Haces composta? Si o No
Si no, ¿por qué? _____

6. ¿Reciclas o reutilizas plástico/cartón/ropa?
   Si o No
Si es así, ¿qué haces? _____
7. ¿Con qué tipo de bolsas compras?
   Plastico Papel Reutilizables

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8. Compro productos con certificaciones sostenibles o productos verdes.

Siempre A veces Nunca

Si no, ¿por qué? [Marque todo lo que corresponda]

- ☐ No es accesible (la tienda no tiene productos sustentables)
- ☐ Demasiado caro
- ☐ No se que buscar
- ☐ No interesado

9. Cuando las cosas se rompen o rasgan, ¿las tira o las arregla?

Tirar Arreglar

11. ¿Comes lo que sobra de la comida? Si o No

Otro_____

12. ¿Llevas a casa la comida sobrante cuando comes fuera? Si o No

13. ¿Usas agua reciclada para regar las plantas?

Si o No

14. ¿Cuando riegas tus plantas? [Seleccione todos los que sean aplicables.]

N/A Mañana Tarde Noche

15. ¿Reciclas tus electrónicos? Si o No

16. ¿Hay lugares para reciclar baterías de litio cerca de tu casa?

Si No No se

¿Dónde? _____

**Dieta**

1. ¿Con qué frecuencia consume carne roja a la semana?

Nunca 1-2 por semana 3-4 por semana Más de 4 veces

2. ¿Qué tipos de carne consume? [Seleccione todos los que sean aplicables.]

a. Cordero
b. Pollo
c. Pescado
d. Carne de vaca
e. Pavo
f. Cerdo
g. Otro _____

3. ¿Cuántas veces a la semana come alimentos fuera de su hogar o compra alimentos fuera de casa?

- ☐ Nunca
- ☐ 1-2 veces
- ☐ 3-4 veces
- ☐ Más de 4 veces

4. ¿Dónde compras tus alimentos? [Seleccione todos los que sean aplicables.]

- ☐ Mercado Local: _____
- ☐ Supermercado: _____
- ☐ Cultivar su propia comida
- ☐ Despensa de Alimentos

5. ¿Hay un mercado local cerca de donde vive?

Si o No

6. ¿Tienes una botella de agua reutilizable? Si o No

7. ¿Cuántas veces a la semana consume productos lácteos?

Nunca 1-2 veces 3-4 veces Más de 4 veces

8. ¿Qué tipo de lácteos consume? [Marque todas las que correspondan]

a. Leche
b. Crema
c. Queso
d. Mantequilla
e. Yogurt

9. ¿Qué tipo de dieta llevas?

a. Regular (Balanceada)
b. Pescatariano
c. Vegetariano
d. Vegano
e. Otro _____

**Desafíos**

1. ¿Qué le impide actuar de forma sustentable? [Seleccione todos los que sean aplicables.]

- ☐ Desconocimiento de los problemas ambientales.
- ☐ Incapaz de ver un impacto tangible en mi comunidad
- ☐ No creo en el cambio climático
- ☐ Falta de otras opciones más sustentables
- ☐ No se pueden romper viejos hábitos
- ☐ La sustentabilidad es demasiado cara

**Si está interesado en una entrevista más detallada, deje su nombre y dirección de correo electrónico (u otro contacto similar)**_____

_____

_____

**Le agradecemos el tiempo que dedicó a realizar esta encuesta. Su respuesta ha sido registrada.**

**Appendix B: In-depth Interview Questions: Survey Volunteers**

Note: Both English and Spanish versions are provided.

1. Do you think your mode of transportation is sustainable?
    a. If it is not, why do you use that type of transportation?
2. Would you be willing to change your diet in order to help become more sustainable?
3. Would you be interested in learning how to compost?
4. Would you be interested in learning how to grow your own food?
5. Do you recycle? If not, why not?
6. Do you own a recycling bin?
7. Do you know any food markets with sustainable products?
8. Would you become more sustainable if you had a support group around you?
9. What would interest you to join a sustainability club?
10. Do you have any recommendations or advice to start a club/organization and make it successful?
11. What are some challenges with sustainability in Costa Rica?
12. What sustainability challenges do you face specifically?
13. Do you have additional climate action or sustainability recommendations or tips?
14. What would you want in a sustainable solutions app?
15. What do you do right now in your life that is sustainable?
16. What keeps you from acting sustainably?
    a. Unaware of environmental issues
    b. Unable to see a tangible impact in my community
    c. Do not believe in climate change
    d. Lack of other, more sustainable options
    e. Cannot break old habits
    f. Sustainability is too expensive
17. Explain your answer below.

_____

_____

_____

Spanish Version

1. ¿Crees que tu modo de transporte es sostenible?
    a. Si no es así, ¿por qué utiliza ese tipo de transporte?
2. ¿Estarías dispuesto a cambiar tu dieta para ayudar a ser más sostenible?
3. ¿Te interesaría aprender a hacer compost?
4. ¿Te interesaría aprender a cultivar tus propios alimentos?
5. ¿Tú reciclas? ¿Si no, porque no?
6. ¿Tienes un contenedor de reciclaje?
7. ¿Conoces algún mercado de alimentos con productos sustentables?
8. ¿Serías más sustentable si tuvieras un grupo de apoyo a tu alrededor?
9. ¿Qué es lo que más te interesaría al unirte a un club de sustentabilidad?
10. ¿Tiene alguna recomendación o consejo para iniciar un club/organización de sustentabilidad?
11. ¿Cuáles son algunos desafíos con la sustentabilidad en Costa Rica?
12. ¿A qué desafíos de sustentabilidad usted se enfrenta específicamente?
13. ¿Tiene recomendaciones o consejos adicionales sobre acción climática o sustentabilidad?
14. ¿Qué le gustaría en una APP de soluciones sustentables?
15. ¿Qué hace hoy en día para que su vida sea sustentable?
16. ¿Qué le impide actuar de forma sustentable?
    a. Desconocimiento de los problemas ambientales.
    b. Incapaz de ver un impacto tangible en mi comunidad
    c. No creo en el cambio climático
    d. Falta de otras opciones más sustentables
    e. No se pueden romper viejos hábitos
    f. La sustentabilidad es demasiado cara
17. Explica tu respuesta.

_____

_____

_____

## Appendix C: Interview Questions: Other Sustainability Groups

Note: Both English and Spanish versions are provided.

1. What inspired you to join [insert organization]?
    a. How does one of your group meetings typically function?
2. How many members are in your organization?
3. When was the organization founded?
4. How does your organization measure progress or goals?
5. How does your organization keep people motivated?
6. What keeps people engaged in your group/organization activities?
7. How does your organization keep a good group dynamic?
    a. How does the group dynamic encourage others to join?
8. What are some of your successes and failures in keeping group members involved?
9. What are the key ingredients to group motivation and permanence?
10. Do you have any recommendations or advice to start a club/organization and make it successful?

Spanish Version

1. ¿Qué te inspiró a unirte a esta organización?
    a. ¿Usualmente cómo funciona una junta/reunión de su grupo?
2. ¿Cuántos miembros hay en su organización?
3. ¿Cuándo se fundó la organización?
4. ¿Cómo mide su organización el progreso o las metas personales y/o de grupo?
5. ¿Cómo mantiene su organización a las personas motivadas?
6. ¿Qué mantiene a las personas involucradas en las actividades de su grupo/organización?
7. ¿Cómo mantiene su organización una buena dinámica de grupo?
    a. ¿Cómo la dinámica de su grupo anima a otros a unirse?
8. ¿Cuáles son algunos de sus éxitos y fracasos en mantener involucrados a los miembros del grupo?
9. ¿Cuáles son los ingredientes clave para la motivación y permanencia del grupo?
10. ¿Tiene alguna recomendación o consejo para iniciar un club/organización y hacerlo exitoso?

## Appendix D: Organization Interview Notes: The Clean Wave

1. What inspired you to join ?

- Founder in 2016, he and roommate walked to the beach and saw trash everywhere, and one day decided to do something about it.
- Born and raised in costa rica

    a. How does one of your group meetings typically function?

    - 20 people in the club core group of 10 people. Legal structure is three people that make up the board of membersand  meet twice a month.
    - All meetings are structured with four pillars: Projects, Results, Finances, Additional subjects.  Meetings are conducted under an hour.
    - General meeting once a month under 45 minutes. They do not have a physical place to meet. Once or twice every week they have face to face meetings and reserve spaces in hotels and get lunch.
    - Meet twice a month with members
    - Most imp part of meetings:
        - Keeping everyone on same page
        - Inform members on what's happening

2. How many members are in your organization?

- 20 members not all live in tamarindo some are in the states some are in different beach towns. They have different chapters in different beaches expanding club. 10-12 beach cleanups per month.

3. When was the organization founded?

- July of 2017, celebrating 6th year anniversary this year

4. How does your organization measure progress or goals?

- During meetings it is important to put everyone on the same page. It has to be on the same page with communication. He works full time on these projects with one other member.
- They have real data tracking using forms to measure month to month and year to year of what gets picked up on beah clean ups.  17-2020,  25-2021, 100-2022 beach cleanups
- 12 tons of waste collected in underwater cleanups
- Measure through data tracking, google forms (track month to month and year to year), numbers are in beach cleanups

8. What are some of your successes and failures in keeping group members involved?

- People come and go- Every Time someone walks away it's a failure but opportunity for improvement
    - Find out what motivates people
    - Understanding who you are working with
- Monthly cleanups in different parts of Costa Rica
    - In San Jose by the bars
- They share their resources to help other communities that try to start something similar at a different beach- empower other leaders in other places is important.

9. What are the key ingredients to group motivation and permanence?

- Leading by example
- Consistency
    - Creates event and things to look forward to
    - Taken 5 years to get to point, but time was needed for it
    - Pandemic did not affect organization, came back stronger

10. Do you have any recommendations or advice to start a club/organization and make it successful?

- Just do it dont think- once you find the right team its being unstoppable
- Keep the passion
- Can not compare yourself to others organizations
    - Progress is not applicable to others
    - Can't always keep up with others
- Alliances have allowed them to get them to the point of where they are
- Teamed up with schools other NGOs and municipales
- Mentor program to others is crucial - now they can help other organizations start
- started paperwork to move this club into the United States - in Boston

Other Notes

- End of 2022: 4.5 tons of nonrecoverable waste
- Goal; To clean 600 beaches in Costa Rica
- Filing as 5013C in States to start in US
    - 4 events in boston

## Appendix E: Organization Interview Notes: Ecoins

1. ¿Qué te inspiró a unirte a esta organización?
    1. ¿Usualmente cómo funciona una junta/reunión de su grupo? Es una empresa privada, como roles, responsables y seguimientos de proyectos como cualquier organización que debe generar ingresos y prestar servicios. Nacimos como respuesta a una necesidad de las empresas y del mercado en general.
2. ¿Cuántos miembros hay en su organización? 8 personas
3. ¿Cuándo se fundó la organización? 2018
4. ¿Cómo mide su organización el progreso o las metas personales y/o de grupo? Siguiendo planes de trabajo, indicadores por área, avance de proyectos contratados, midiendo cantidad de usuarios y aliados que se integran.
5. ¿Cómo mantiene su organización a las personas motivadas? Compartimos el propósito, y reciben un salario económico y emocional competitivo.
6. ¿Qué mantiene a las personas involucradas en las actividades de su grupo/organización? Compartir el propósito y recibir un salario justo.
7. ¿Cómo mantiene su organización una buena dinámica de grupo? Compartir el propósito y recibir un salario justo

. ¿Cómo la dinámica de su grupo anima a otros a unirse? Al invitar a personas a unirse al proyecto debemos ofrecer incentivos interesantes y de valor.

8. ¿Cuáles son algunos de sus éxitos y fracasos en mantener involucrados a los miembros del grupo? Muchos se inscriben, pero luego no son constantes en participación, hay que escucharles y ofrecer innovación

## Appendix F: Organization Interview Notes: Sphera

1. What inspired you to join Sphera?

- Three years ago she joined - Sphera is certified B-corp
- Based in amsterdam currently, splits time in Costa Rica
- Focuses on waste of resources

    a. How does one of your group meetings typically function?
        - We have different meetings. Weekly meetings for different sectors of company.
        - Uses the scrub method
        - Open to adding topics
            - Trello and Asana (kanban board like)
        - Meet on zoom with others, balance between office/ in person and online

2. How many members are in your organization?

- Started at three now is 25

3. When was the organization founded?

- US organization founded 16 years ago
- Branches in Europe

4. How does your organization measure progress or goals?

- Depends on department - global goals to inner circle ones and the ones for country
- Key performance indicators is how they measure success - events and participation
- Different entities that report directly to them (offices in dif locations)

5. How does your organization keep people motivated?

- Strive to motivate people by creating an impact and understanding the main interests
    - Benefits to employees
    - Map all the things that are happening and make packages
    - 2 days off for driving instead of flying
    - Passionate about what they're doing

6. What keeps people engaged in your group/organization activities?

- Finding ways to connect- on a personal not on a professional level
- In amsterdam, 3 different teams where people spend time together and connect
- Volunteering together to share and spend time with together
- Social channel in Slack for extrinsic motivation
- Commincation through slack

7. How does your organization keep a good group dynamic?

- Uses slack for conversations and trelo for communication.

    a. How does the group dynamic encourage others to join?
        - Social media  creating a space and community to collaborate
        - Highlighting what they're doing in social media to also collaborate together

8. What are some of your successes and failures in keeping group members involved?

- Challenges is to measure what they are doing - allowing people to work together is a success

Successes

- Seeing people collaborating together, have a feeling that they are part of the community
- Feel connected to others and allowing them to work together

Failures

- Knowing who is best engaged in community
- To measure what they're doing
- Tracking people

9. What are the key ingredients to group motivation and permanence?

- Book recommendation by Daniela Gonzalez:  Get Together: How to Build a Community with Your People.
- Giving the community aspect
- Giving time to collaborate

10. Do you have any recommendations or advice to start a club/organization and make it successful?

- Keep it simple- challenge is trying to cover a lot of topics- start small-transparency
- Challenge: trying to cover a lot of different topics- too much for companies to follow
- Communication, transparency
    - Show that it’s not always perfect

## Appendix G: Organization Interview Notes: Lifting Hands

1. What inspired you to join Lifting Hands?

- Lifting hands is an organization that works with vulnerable communities
    - Give support in learning/social skills
- Developing programs that give another perspective of life. Stay away from narcotics community and give them a better future

    a. How does one of your group meetings typically function?

- Work with volunteers, have a process manage everything that has to do with volunteers and how to get involved in the activities from the foundation

- Meetings at the start of trimester
    - Explain everything
    - Social activities to engage with the group
    - Interaction in projects
- See what volunteers are doing and what they're feeling and see if they need anything from them by filling out a form as well as the people from the community to see how they feel with the volunteers.
- End of trimester, fill out the form tell them how their feeling

2. How many members are in your organization?

- Two dif projects, one starting this year
- Between two projects, 150 volunteers
- 300 people from communities that are involved in lessons

3. When was the organization founded?

    - 2013

4. How does your organization measure progress or goals?

- Work with google drive and forms, to see progress and programs
- 3 measurements
    - 1 start of year to see how they behave
    - One in the middle of the year
    - One measurement at the end to compare results

- Three measurements of the year, compare from start to end, middle- checking to see if they understand or like the programs
- 3 variables they work with
- Kids/youth (social skills)

- Emotional intelligence., self discovery, and life project: social skills
- Projects - psychological measurements

5. How does your organization keep people motivated?

- Volunteers, program, activities to thank them for all the work (social engagement), hang out with out volunteers, comfortable setting

6. What keeps people engaged in your group/organization activities?

- Mostly this connection that they make with the people from the communities that they meet, feeling that they are doing something good for the community as well as being thanked by the community.

7. How does your organization keep a good group dynamic?

- Try to stay in touch with all volunteers, have an atmosphere of working together and not alone, the group is there and supporting them. Programs are there they just have to follow them

- Email and whatsapp to communicate

    a. How does the group dynamic encourage others to join?

- Connection being made with the foundation as well as with the communities people like to spread word about social change
- When other people spread the word (social networks), they get more volunteers to come

8. What are some of your successes and failures in keeping group members involved?

Successes:

- Getting more involved with volunteers
- Keeping in touch with them
- There for them

- Care for the volunteers

Failures:

- Not all volunteers get same amount of time from leaders
- Might not get attention all the time

9. What are the key ingredients to group motivation and permanence?

- People need clear instructions
- See that there is in impact on the people that they are working with
- good communication with volunteers and the organization
- Things are going well and things are going well (transparency)
- How they're feeling with this experience
- Spaces to engage with other volunteers, social interaction

10. Do you have any recommendations or advice to start a club/organization and make it successful?

- Care for the people and remember that they are also people
- Complete programs
- Understanding that they don't always have time for the organization
- Be flexible
- Communication with people, honesty, clear idea of what the work of the organization is to transmit that to the volunteers

## Appendix H: Organization Interview Notes: Green Wolf Costa Rica

1. What inspired you to join [Green Wolf Costa Rica]?
    - To be able to do something more than what I already was doing
    - 6 months after starting to volunteer presented his own initiative that includes environmental, educational, and economic aspects. Afterwards decided to create The Green Wolf.
    - Something more comprehensive that involves more people

    a. How does one of your group meetings typically function?
        - Talk about growth opportunities
        - From a legal aspect their first meeting, decided how to constitute the club to be an NGO in order to develop projects based on their values

2. How many members are in your organization?
    - 10 members in the board of directors
    - 120 volunteers on average per campaign

3. When was the organization founded?
    - 2019, but legally constituted in 2020

4. How does your organization measure progress or goals?
    - Project goals with the 4 fixed projects, each project has their own needs
    - How much profitability does each project have in order to reinvest in the organization

5. How does your organization keep people motivated?
    - By learning and understanding that everyone is different in other aspects and being able to find what each person is good at and take advantage of it and see how their personalities can help the organization and their own self

6. What keeps people engaged in your group/organization activities?
    - Be active on social media and post all campaigns
    - Whatsapp has 1500 people informed
    - There's 305 people per group chat and there are 7 group chats that are focused on different topics like: environment, wellness, and art

7. How does your organization keep a good group dynamic?
    - A lot of communication while generating projects for everyone
    - Virtues is that the club is very integral, everyone has the opportunity to make an impact from what they're good at

a. How does the group dynamic encourage others to join?
    - When people believe in the organization it generates a feeling of belonging and makes others talk about the club and therefore make more people join

8. What are some of your successes and failures in keeping group members involved?
    - On an individual level, showing them that they're good at different things and giving them room for growth to become better people
    - To learn how to carry out individual strengthening in a more thoughtful way

9. What are the key ingredients to group motivation and permanence?
    - Transparency
    - Whoever leads has to love what they do
    - Compromise and genuine change

10. Do you have any recommendations or advice to start a club/organization and make it successful?
    - Don't be afraid of failure
    - Shield oneself from criticism
    - Believe in yourself

## Appendix I: Organization Interview Notes: Bodhi Surf + Yoga

1. What inspired you to join Bodhi Surf + Yoga?
    - I am a founder, we were inspired to create this organization for the passion we have for nature, yoga, surf, traveling and the people

    a. How does one of your group meetings typically function?
        - We don't have a format, we just convene and meet. Some meetings are already established per week, others if a topic or need arises.
2. How many members are in your organization?
    - 10
3. When was the organization founded?
    - 2009
4. How does your organization measure progress or goals?
    - We don't really have a specific measurement metric. We are simply small and that allows us to do it by observation.
5. How does your organization keep people motivated?
    - We hold workshops on topics that may interest you like leadership, self improvement, the environment and team building.We also give out a benefit package, do annual rides and bonuses.
6. What keeps people engaged in your group/organization activities?
    - Communication, we take time to communicate because we do what we do. That helps members feel part of.
7. How does your organization keep a good group dynamic?
    - We take time to hold meetings, team buildings, from time to time we share breakfasts or lunches.

    a. How does the group dynamic encourage others to join?
    - I don't understand
8. What are some of your successes and failures in keeping group members involved?
    - Really what we have done has always worked. I can't think about failures.

9. What are the key ingredients to group motivation and permanence?
    - The fact that the person feels that their work is important and valued. Always looking for training, workshops and others where employees feel they are learning, spending time in 1-on-1 meetings to get to know the person well, their needs, desires, expectations and personalize opportunities according to what each one wants. and need.

10. Do you have any recommendations or advice to start a club/organization and make it successful?
    - Spend time getting to know your staff and understanding it.

## Appendix J: Organization Interview Notes: Chepecletas

1. What inspired you to join [Chepecletas]?
    - There was a group of people that were talking about climate change and becoming carbon neutral by 2021
    - None of the plans included the citizens
    - People use cars in the city, so they decided to start bicycle tours for Costa Ricans in order to help change their minds and start using bikes for transportation around the city (promote public transportation)

    a. How does one of your group meetings typically function?
        - Changing since 2020 because of pandemic
        - Used to meet every day, now they meet casually every week or every two weeks
        - No set place or time, usually in coffee shops
        - Meet after tours as well

2. How many members are in your organization?
    - 1 in office, 6 other people on field → work with other companies (travel agencies, universities) as it is tourism
    - Partner with other companies when they don't have enough people to cover
    - Work with other organizations, so the number varies

3. When was the organization founded?
    - 2010

4. How does your organization measure progress or goals?
    - They measure the number of people who are part of activities every year, there are more than a thousand every year
    - Small changes (and number of people involved)

5. How does your organization keep people motivated?
    - Number one thing is that they love the city and are always exploring trying to find new coffee places and restaurants and share it with other people.
    - Create small events for them (hiking or going to the bar)

6. What keeps people engaged in your group/organization activities?
    - One public activity every week, people open to explore/meet new people
    - Make activities "attractive" and all ages come together

7. How does your organization keep a good group dynamic?

- Help from national/international press, keep in people's minds so they always hear about them and their activities.
- Keep a good reputation
- Being authentic, transparent

a. How does the group dynamic encourage others to join?
    - People for some reason feel comfortable with them and activities, an atmosphere where everyone is welcome

8. What are the key ingredients to group motivation and permanence?

9. What are some of your successes and failures in keeping group members involved?
    - Our members have been from 5 to 10 years in the organization
    - In 2020 they had to stop activities and it was difficult to keep in contact as everything went virtual from March to December. It was difficult.
    - After that they have not been working in only one place/office but they try to meet some times face to face in activities in parks, coffee shops, or restaurants
    - All share a real interest and passion for San José

10. Do you have any recommendations or advice to start a club/organization and make it successful?
    - The most important thing is to find people who share the same goal/interest and passion
    - It's important to find spaces to interact, from virtual but specially places to interact face to face