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Faculty of Juridical Sciences

International Studies Career

International cooperation: Impact of the donation of water filters on the health and quality of life of two rural communities, a mountain community and a coastal community by The Waterbearers

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DEDICATION

This work is dedicated to my family, especially to my aunt Diana, for having been my support throughout my university career and throughout my life. To all the special people who accompanied me in this stage, contributing to my training both professionally and as a human being.

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To my friends, with whom I shared these valuable years inside and outside the classroom.

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International Cooperation: Impact of the Donation of Water Filters on the Health and Quality of Life of Two Rural Communities, a Mountain Community and a Coastal Community by The Waterbearers

Abstract

The health and quality of life of people is seriously affected by diseases transmitted through the consumption of poor-quality water, especially in rural areas. Cooperation between International Organization and local communities can be a way to improve access to clean drinking water. An exploratory review of quantitative and qualitative monitoring and evaluation data of water filter distribution to two communities, one coastal and one mountain by the Waterbearers from 2019-2021, shows that access to clean water improved the health and quality of life of community members. A semi-structured interview with the co-founder of the Waterbearers underscored the complexities of fund-raising and decisions about participatory projects with communities.

Key words: international organization, rural communities, The Waterbearers, clean drinking water, water filter.

Cooperación Internacional: Impacto de la Donación de Filtros de Agua en la Salud y Calidad de Vida de dos Comunidades Rurales, Una Comunidad de la Sierra y Una Comunidad Costera por Parte de The Waterbearers

Resumen

La salud y calidad de vida de las personas se ve gravemente afectada por enfermedades transmitidas por el consumo de agua de mala calidad, especialmente en las zonas rurales. La cooperación entre la Organización Internacional y las comunidades locales puede ser una forma de mejorar el acceso al agua potable. Una revisión exploratoria de los datos de evaluación y monitoreo cuantitativos y cualitativos de la distribución de filtros de agua a dos comunidades, una costera y otra de la sierra por parte de Waterbearers de 2019 a 2021, muestra que el acceso a agua limpia mejoró la salud y la calidad de vida de los miembros de la comunidad. Una entrevista semiestructurada con la cofundadora de The Waterbearers subrayó las complejidades de la recaudación de fondos y las decisiones sobre proyectos participativos con las comunidades.

Palabras clave: organización internacional, comunidades rurales, The Waterbearers, agua potable, filtros de agua.

International Cooperation: Impact of the Donation of Water Filters on the Health and Quality of Life of Two Rural Communities, a Mountain Community and a Coastal Community by The Waterbearers

1. Introduction

“We work in remote places where people lack access to clean water, collaborating with communities to provide sustainable solutions” (The Waterbearers, 2022).

The human right to water is the right to guarantee everyone has sufficient, safe, acceptable, accessible and affordable water (Bernal, 2017). The main motivation to carry out this research is to be able to demonstrate how international cooperation is presented as a solution to the challenges of society, such as the problem of access to drinking water in communities in the provinces of Azuay and Santa Elena. The need for this research is reflected in the importance of establishing cooperation with non-governmental organizations (NGOs) so that rural communities can have access to drinking water and thus prevent them from being exposed to countless diseases.

NGOs play a prominent part in the health and social development of different communities around the world, especially in underdeveloped countries where potable water may not be available. In fact, globally there are more than 2 billion people who do not have access to clean water and in Ecuador clean drinking water is a resource that is not available to everyone, even less so in rural areas (World Health Organization, 2022).

Through cooperation with national, local and community organizations in Ecuador, the Waterbearers Organization promotes the right (Sustainable Development Goal#6) to access potable water through the distribution of donated water filters. For example, during 2019 to 2021, The Waterbearers promoted campaigns in collaboration with the University of Azuay in a coastal area, Santa Elena, and a community in the Sierra (Andes), Ona, to support the quality of drinking water and contribute to improved health in both adults and children.

In this article, I will demonstrate the importance of the international cooperation of an international organization, The Waterbearers, to achieve a positive change in the access to drinking water to improve the quality of life and health of two rural communities, one located in Santa Elena and one in Ona. In addition to a brief narrative of my visit to a rural community in the process of receiving water filters, I will analyze the monitoring data and evaluation documents of these projects compiled by the University of Azuay and The Waterbearers during 2019-2021. During an interview with The Waterbearers co-founder Jane Brinton information was gathered about the impact on people's health from cooperating with The Waterbearers to distribute water filters globally and the challenges experienced on various continents.

Within my international relations internship in the Prefecture of Azuay, I was able to participate in visits to rural communities, where I was able to witness and be part of the process of delivering filters. I visited six communities located in different parishes, for example San Juan Del Cid, Chordeleg, Delegsol, Guachapala, San Vicente and San Fernando, which have different ways of accessing clean drinking water. This experience showed me the diversity of the communities and the difficulties with health and access to drinking water, especially in rural and indigenous communities.

1.1.Objectives

1.1.1. General Objective:

To demonstrate how the donation of water filters by a non-profit organization The Waterbearers can significantly improve health and quality of life.

1.1.2. Specific Objectives:

1. To analyze the monitoring and evaluation data of the health of two communities before and after the donation of water filters (Project UDA 2019-2021).
2. To collect and analyze the data on the official website of The Waterbearers foundation.
3. To document the experience of the co-founder of the organization and the people to whom the filters have been donated.

1.2. Theoretical Framework

The water crisis according to Herrero (s. f.) lies in poverty, inequality and unequal power relations, as well as in wrong management policies that aggravate scarcity. The human right to water is the right to guarantee everyone has sufficient, safe, acceptable, accessible and affordable water (Bernal, 2017). According to data from the United Nations (2019) 2,000 million people do not have access to drinking water around the world. The WHO indicates that contaminated water can transmit diseases such as diarrhea, cholera, dysentery, typhoid fever and poliomyelitis, which seriously affect people's health (World Health Organization, 2022).

According to figures from the UNHCR (2019) the scarcity of drinking water forces people to go to contaminated sources, the consumption of contaminated water can transmit diseases such as diarrhea, cholera or polio, which causes around 502,000 deaths from diarrhea per year. It is estimated that every day 6,000 children die from diseases associated with lack of access to drinking water (Pardo, 2004). The lack of access to water is related to poverty and disease, it is estimated that one in two hospital beds in the world is occupied by a person with a water-borne disease (Pardo, 2004).

Deficits in coverage and quality of services tend to be concentrated in low-income groups, vulnerable groups and rural populations (Organización Panamericana de la Salud, s. f.). Furthermore, according to the report of the United Nations Educational, Scientific and Cultural Organization (2019) the insufficient financial resources are a serious constraint to achieving national water targets in most countries, and especially in rural areas. Similarly, in rural areas it is the community committees elected by community members that ensures the provision of this service (Kayser et al., 2015).

In 2008 Ecuador recognized access to drinking water as a fundamental and inalienable human right (Article 12-Ecuadorian Constitution, 2008) that guarantees good living, known as "Sumak Kawsay". It is established that water is an inalienable human right therefore it must be managed sustainably in a way that guarantees that water is clean, sufficient, healthy, acceptable, accessible and affordable for personal and domestic use (Vinelli, 2016). The National Water and Sanitation Strategy (ENAS) was initiated in 2016 with the intention to provide universal coverage of water services throughout the Ecuadorian territory.

The main objective of the Government, both in institutional changes and in the resources allocated to the drinking water sectors, is to achieve universal coverage and continuous, permanent and quality supply to Ecuadorians. However, in Ecuador 9 provinces out of 24 have access to drinking water, which means that 83.7% of the population does not have access to drinking water (Torres, 2021). In Ecuador, these problems are related to poor management, distance, and lack of economic resources (Torres, 2021). Similarly, as Pardo (2004) indicates, the ability to supply a sufficient amount of water and treat wastewater is a challenge that local administrations cannot meet.

In Ecuador, according to Kayser et al. (2015) the governance of water quality is supervised by competent authorities such as the Ministry of Urban Development and Housing (MIDUVI) in charge of developing policies, standards and guidelines for drinking water, the Ministry of Health (MS) is responsible for monitoring water quality and the National Secretariat for Water (SENAGUA) which has the mission of distributing resources within the country. The lack of resources to complete the projects and the distance from the communities are among the main problems that the Municipalities have to expand the drinking water service in the country (Torres, 2021).

According to Camacho and Astudillo (2020) drinking water in certain places becomes difficult to access. In Ecuador, over the years greater equity in access to water has been attempted, however, this equity has not been achieved because if we compare the urban area and the rural area we find that in the urban area 79, 1% of the population has safe water, and only 51.4% in rural areas, that is, more than half of which is of poor quality (INEC, 2018). According to the United Nations Office for the Coordination of Humanitarian Affairs (2017) about 20.7% of the water for consumption in Ecuador is contaminated with feces and with the E. Coli bacteria, where 15.4% of the samples in urban areas turned out to have this bacterium, and in rural areas it reaches 31.8%.

Key water quality governance challenges in Ecuador include lack of coordination and data sharing between ministries, inadequate monitoring, and enforcement of water quality laws, insufficient technical capacity to conduct water quality tests in rural areas, scarce financial resources, and inadequate administrative and technical management of water systems (Kayser et al., 2015). Rural areas in Ecuador have fewer financial and technical resources compared to urban areas and face greater challenges related to collecting data on water quality, coordinating with national offices, and sharing lessons learned (Kayser et al., 2015). Pardo (2004) indicates, since, in developing countries, the problem is the lack of infrastructure, these represent a huge investment to be able to solve water needs.

According to a study published by Kayser et al. (2015) concerning the governance of drinking water quality in Ecuador, Brazil, and Malawi, technical reports indicate that the Ministry of Health is responsible for water quality tests, however the Ministry of Health has the resources to take water samples from some systems, but not from all, which means that it is unknown how much of water is contaminated. Testing for physical, chemical, and microbiological parameters for a water source cost between \$180 and \$200, so not all water systems can be tested due to budget. Failure to pay for water services provided to the public reduces the resources available for administrative and technical management at the local level, which in turn reduces the resources for operation and maintenance.

The cost of implementation and operation is low and the maintenance of a filter is low and can be carried out by the same family that receives it (Santos et al., 2018). Non-profit organizations have become advocates of politically neutral water problems and solutions, problems that can be solved with technical knowledge and good governance (Boelens et al., 2016).

According to Armijos (2013) water management is a controversial issue in Ecuador, since factors such as equitable access to drinking water led to important indigenous and peasant mobilizations that paralyzed the country for many days in 1990 and 1994. Thousands of people from rural and peri-urban areas of Ecuador marched in Quito against a draft new water law. Where it was believed that the new law would allow the State to take control over this resource in these areas, leaving the institutions managed locally by these communities, such as Potable Water Management Boards or Potable Water Users' Associations, without autonomy.

According to the Participatory Planning Manual with an Equity Approach in Communities of Natural Protected Areas (s. f.) the participatory approach is a tool for social intervention work, because it seeks the grouping of wills to obtain immediate objectives, in addition to establishing social participation as a process to achieve higher quality goals, through self-management and organized participation of local communities.

The participatory approach plays an important role, since it improves motivation, increases learning and feelings of ownership that allow the empowerment of the community (Akvopedia, s. f.). In this way, it will be possible to identify needs, plan, monitor or evaluate projects and programs on the issues that shape their lives to achieve goals and diagnose their problems (Akvopedia, s. f.). Consequently, a course of action can be traced to solve problems through the intervention of experts who only play the role of facilitators such as non-profit organizations. (Akvopedia, s. f.).

The growing importance of NGOs has led them to become a central actor in the processes of new technologies in rural communities (Benedetti & Pelicano, 2001). According to Macay and Yoza (2019) NGOs have come to fill that void that the government has not been able to partially fill in society. NGOs fulfill an important social function as defenders of humanitarian social causes, where they do not seek to replace the States, but rather complete their aid work in areas where they are considered necessary without a lucrative incentive. Through their actions, NGOs seek to generate self-management in people and communities, with the aim of turning them into agents of their own development and satisfaction of their needs, such as social development (Picas Contreras, 2001).

According to Macay and Yoza (2019), non-governmental organizations concentrate their efforts on influencing policies, programs, projects and actions together with community participation, so that it is the community itself that can make decisions to achieve the social development of their communities. a community or some social groups.

International cooperation is based on joint actions and strategic alliances between countries, regions, organizations and diverse institutions to support the economic and social development of a country, through the transfer of technology or knowledge, experiences or resources to achieve development objectives (Red Nacional de Agencias de Desarrollo Local de Colombia, s. f.). For example, to better understand what international cooperation is and how it can help different communities to access drinking water, it is necessary to mention the United Nations initiative "Latin American Clean Water". This initiative seeks to provide sustainable water solutions and improve the health and well-being of people living in extreme poverty in thirteen Latin American countries (Sustainable Development Goals, 2021). The project seeks in the first

instance to provide access to drinking water and sanitation systems. Second, to improve sustainable water supply for productive activities and train people to manage water systems effectively, and third, to provide workshops on conservation and water-related topics such as diseases, etc.

The specific objectives of the proposed Latin American Clean Water Initiative include: 1) Build complete and functioning drinking water systems, including taps, outdoor sinks, water tanks and latrines, etc. 2) Improve irrigation systems for agriculture and other productive purposes, 3) Improve degraded water systems, 4) Involve all beneficiary families in the construction and/or repair of water systems, 5) Train the beneficiary communities in the management and administration of drinking water and sanitation systems to ensure long-term sustainability, 6) Offer training in health problems related to waterborne diseases, water resource management and environmental conservation, 6) Monitor and evaluate the impact of the program, 7) Share best practices for water resource management in a seminar, and 8) Communicate the impact to the public (Sustainable Development Goals, 2021).

In addition, international cooperation generally consists of the transfer or loan of valuable resources so that the other party can overcome specific problems or enhance its development (Kim, 2018). The donation of water filters by non-profit organizations facilitates access to drinking water for people, and it has been proven how this practical solution can change lives (Fundación GOTEQ, s. f.).

Within international cooperation, different sources of cooperation can be identified, such as governmental cooperation, non-governmental cooperation and mixed funds. According to Álvarez Orellana (2012) governmental cooperation, this occurs in different ways, such as: bilaterally, in which the funds are allocated from a donor country to the beneficiary country, multilaterally, in which the governments are the ones that allocate the funds to multilateral organizations and these are the ones that decide how to allocate the funds. Non-governmental cooperation is that carried out through development NGOs or other types of civil society associations. Finally, mixed funds are made up of government funds and non-government funds.

Within the types of international cooperation for development are financial cooperation, technical cooperation, humanitarian and emergency aid; and food aid. According to Álvarez Orellana (2012) the financial cooperation is the transfer of reimbursable or non-reimbursable funds for financial activities focused on development in the beneficiary country. Technical cooperation involves the transfer of techniques, technologies, knowledge, skills or experiences from rich countries to developing countries, also known as North to South, in order to be able to adopt the knowledge, skills, abilities, experiences and resources that the country in development does not have in order to generate development activities. Emergency aid and humanitarian aid, as its name indicates, urgent aid is provided to victims of some type of natural disaster or armed conflict, this can be the free delivery of goods and services for immediate survival. Humanitarian aid shares the same objective as emergency aid; however, it also acts in the long term to help refugees and internally displaced people, usually until the reason for which they fled can be solved.

2. State of art

Global similarities in the case narratives listed on the Waterbearers website are participation, poverty, remoteness/dispersed communities lack of clean water. For example, according to The Waterbearers (The Waterbearers, 2022a) in the Peruvian in the Ancash region there are communities that are difficult to access due to mountainous roads. The water consumed by these communities is collected from ditches and springs, contaminated with bacteria, parasites, feces, debris, and other impurities. Some people consume it directly and others have chlorination systems that are not regulated that are not safe. The Ministry of Health has identified that children in this region have a high incidence of gastrointestinal diseases and parasites, which cause anemia and malnutrition. The donation of the filters by The Waterbearers meant that 8,224 men, women and children now benefit from access to clean water. In Sierra Leone in Mbondonbur, people are forced to drink polluted water from old and rusty pipes, which affects their health. However, The Waterbearers provided clean water filter kits for each of these villages and schools to ensure access to clean water and improve their quality of life (The Waterbearers, 2022b). In Zimbabwe, the water is not safe to drink and people often get sick from drinking this water. The Waterbearers installed two wells that benefit 3,600 people and eliminate the need for young women to walk 20 km a day to fetch water (The Waterbearers, 2022d). However, strategies to effectively and culturally appropriately monitor and evaluate these projects remain a challenge.

Armijos (2013) pointed out that the main problem for the provision of drinking water in rural areas is the continuity in the administration of water systems, due to the lack of appropriate agencies for this function. Therefore, it is necessary to build local organizations at the community level which are collectively capable of assuming these responsibilities.

In addition, as indicated by Macay and Yoza (2019) it is possible to demonstrate the positive factors such as greater community participation that an international organization (The Waterbearers caused) from its intervention in the community of San Pedro de Portoviejo, within this case, it was established that non-governmental organizations are an important support for community development, benefiting citizens while contributing to improving the quality of life of the population. In addition, it is detailed that the participation of the communities becomes one of the fundamental keys for the NGOs intervention, because they participate in the goals, planning and execution of their own development projects.

3. Methodology

To carry out this article, exploratory research with a qualitative and quantitative approach was used as a methodology by the author Creswell (2009). The exploratory research method was developed to review the secondary quantitative data of the Monitoring and Evaluation data that measure variables to facilitate the search for answers and use statistical analysis to obtain information to answer the question or hypothesis. Secondary qualitative data is reviewed from previously collected data such as unanalyzed video interviews with community members who received water filters.

In addition to reviewing secondary quantitative and qualitative data sources, new qualitative data was collected in an interview with Jane Brinton. The questions for this interview to collect primary data were based on the review of secondary data and focused on the main objective, which is to demonstrate how, through international cooperation with a non-profit organization, quality and health of a community can be improved through the donation of water filters.

Participants from the project being reviewed

Ona is a canton in the province of Azuay, with a population of 3,234 people. Ona is made up of many small scattered rural communities. It is located at an altitude of 2,343 meters above sea level. Interviews were carried out with representatives from four of Ona's small communities.

The province of Santa Elena is one of the 24 provinces that make up the Republic of Ecuador, located in the coastal region. 401,178 people live in this territory, being the fourteenth most populous province in the country. It is made up of 3 cantons, with their respective urban and rural parishes. One interview was carried out with a representative of one coastal village.

Participant give permission to use the real names for this project report.

Process

The data was triangulate in the following way:

- 1) Review of secondary quantitative data
 - a. Monitoring and Evaluation Documents for Ona and Santa Elena
- 2) Review of secondary data
 - a. Secondary data video interviews for health and wellness topics before and after to water filter donation (ONA).
 - b. Video interview review of secondary data for health and wellness issues before and after the donation of water filters (SANTA ELENA).
- 3) Collection and analysis of primary data
 - a. Video interview with Jane Brinton
- 4) Interpret the results

4. Results

4.1. Review of secondary quantitative data

4.1.1. Monitoring and Evaluation Documents for Ona and Santa Elena

Monitoring and Evaluation (M&E) is the process of collecting, analyzing, and using information to track a project toward achieving goals and managing decisions. M&E focuses on the expected and goals, processes and results and process to understand the achievements or the lack of them. The aim is to determine the magnitude of the impact, effectiveness, efficiency and sustainability of the interventions and their contribution to achieving the results (UN WOMEN, 2010).

Santa Elena

In the case of Santa Elena, the monitoring and evaluation data consists of the goal, outcomes, and outputs, which were measured by the University of Azuay and Carlos Alvarado who is the representative of the Santa Elena community and the TuNosImportas organization. Both Carlos Alvarado and The Waterbearers followed step by step the implementation of the filters within the community of Santa Elena from the donation.

The Waterbearers checklist confirmed the donation of 5 water filters to 5 community families. A checklist was used to measure the fulfillment of the goal, completed by the members of the community and the team of University of Azuay and The Waterbearers.

The outcomes according to the checklist carried out by Juan Carlos, demonstrated a 50% improvement in the health of all members of the community who participated in the filter donation. In addition, it was observed that the community was now able to spend more time in other livelihoods, since they reduced the hours for the preparation of clean safe water by 50%.

According to the documents, the outputs demonstrate that the donation of the filters was carried out 100%, therefore all members of the community have access to drinking water. Finally, through the checklist carried out by Carlos Alvarado, it was possible to observe that the visits to the health Center were reduced by 50%.

Ona

In the case of the community of Ona, the monitoring and evaluation data consist of the goal, outcomes, and outputs which were measured by the team of University of Azuay, The Waterbearers, and the members of the community.

The Waterbearers checklist confirmed the goal to deliver 50 filters for access to drinking water for to 200 families to share. A checklist was used to measure the fulfillment of the goal, outcomes, and outputs which was completed by the members of the community, the team of the University of Azuay, and The Waterbearers.

According to the monitoring and evaluation outputs completed with a checklist by the municipality of Ona representative the delivery of 50 water filters supported a 50% improvement in the health of all members of the community who participated. Additionally, visits to the health center related to water illness were reduced by 50% resulted in increased time for livelihood opportunities and increased wellbeing.

4.2. Review of secondary data

4.2.1. Video interviews for health and wellness topics before and after to water filter donation (ONA)

These interviews were carried out when the project began, and have not been used for other purposes. They will be reviewed for themes related to health and quality of life.

In the videos before to the distribution of filters in Oña, an interview (#1) with a mother of a young child from this community described that the people of the communities depend a lot of rivers or irrigation canals to access water that is not pure; and that the filter donated by the organization would be of great help to avoid contracting diseases from consuming this type of water.

An 11-year-old student from the community of Ona (interview #2) pointed out that there are communities that do not have drinking water and that the donation of this filter will help solve this problem.

In interview #3, Sebastián Cucuntal, president of two communities of Oña, Moras Loma and Ornillos, without drinking water was interviewed. He pointed out that until the arrival of The Waterbearers organization they have never had any type of workshop on drinking water, and that the only source to access drinking water was through an untreated river channel of the river and that the donation of the filter would purify the water that they normally consume.

In interview #4, two women elders belonging to a community with a piped water pointed out that there were problems related to the consumption of untreated water from the river channel, causing children and the elderly to frequently visit the health center. In addition, they pointed out that basic cleaning cannot be carried out because of contracting fungi from the contaminated water.

In interview #5, Paul Shañain an Ona local government community rights employee pointed out that the intervention of The Waterbearers was important to be able to solve the problem of drinking water consumption in rural areas. In addition, he pointed out that within this rural community more than 2,000 people do not have drinking water, which causes an increase in stomach diseases in children and in people in general. The sources to obtain water were normally rivers and irrigation canals, in addition this community shares the water with the animals that are in the area, which increases the diseases that can be contracted.

In interview #6 the mayor of the municipality of Oña was interviewed. He pointed out that older adults lack clean drinking water, and that the consumption of this water causes stomach illnesses, especially affecting children.

4.2.2. Interview with Santa Elena community before and after distribution and use of filter

The interview with Epifania Suarez took place 3 months after the donation of the water filter, with the support of Carlos Alvarado who is part of the TuNosImportas, a local organization and details what life was like before and after using the water filter.

In interview #1, Epifania Suárez, a 61-year-old woman, was interviewed who is the first person to whom the first filter was delivered in the Province of Santa Elena in a joint effort with the organization C.A.TuNosImportas and the international organization The Waterbearers to ensure access to clean and safe water. Through this interview, she detailed that she is a low-income woman, owner of a small banana flour store, which is her main economic livelihood.

Epifania pointed out that she has been able to notice different improvements in her health, since she no longer has headaches, which used to happen frequently. In addition, she points out that the consumption of clean and quality water has caused an emotional improvement.

In interview #2, Demetrio de la Cruz, a 71-year-old man, who is the husband of Epifania Suárez, was interviewed. Demetrio detailed that the donation of the filter has been very helpful, since his wife was constantly sick from consuming poor-quality water, which became a reason for his wife not to continue consuming this resource. However, after the donation of the filter, Demetrio pointed out that the filter has been an important factor for his wife to make the decision to resume drinking water, which has caused a noticeable improvement in his wife's health.

In interview #3, 21-year-old Angie Lainez, who is the daughter of Epifania, was interviewed. She pointed out that the difference before and after the donation of the filter is very noticeable since, as Angie indicated, before the donation of the filter her mother did not consume water, which was causing problems in her health. However, Angie said that since the donation of the filter, she has noticed that Epifania constantly consumes water, something that did not happen before. In addition, she pointed out that she has been able to notice that Epifania has begun to improve her health, and emotionally enhanced.

4.3. Collection and analysis of primary data

4.3.1. Video interview with Jane Brinton

The following paragraphs are a summary of the interview with Jane Brinton, co-founder of the Waterbearers on:

The organization's mission

The Waterbearers try to inspire women who have access to clean water to help people who don't. In addition, we seek a world where everyone can access clean and safe drinking water, recognized as a fundamental right.

An important aspect within the mission of The Waterbearers is the training that must be given to the people of the communities so that they do not consume water from contaminated sources. Therefore, the process of community formation is a fundamental aspect, which is why the participation of the community leader is important for the education of the community. The leader is someone who really cares about the community and wants to be a representative that the NGO can communicate with constantly so that a proper assessment can be carried out after the filters are installed in the community.

Community evaluation

The community evaluation consists of questions related to drinking water, for example, know how many people there are in the community, how many women, how many men, how many children under five years of age, how many children are at school, if they have a health center and if they have a local school. Questions about drinking water is a process that is carried out in any place where the donation of filters is made, in order to obtain necessary information about the community. Among the most important questions asked of the community are whether any other NGOs or non-profit organizations are working with the community, whether the community being helped is supported by the government in any way, and questions to get as much information as possible about their water, about health, and especially if children get sick from drinking water.

Questions focused on drinking water are essential to obtain as much information as possible since many times people do not realize that it is the water that makes them sick, due to the fact that health evaluations are not carried out in these rural communities therefore it is unknown if it is the water, food or perhaps the milk that makes them sick.

Filter distribution

The Sawyer Point One filter that The Waterbearers donate is made in the United States, but the key membrane that filters the natural bacteria is actually made in China and assembled in China, but all the other components are made in United States.

One third of the people in Ecuador do not have clean water, which is a very high number. Sometimes it is the local government that identifies the communities that are in need at which point The Waterbearers go to the communities and make decisions on how many filters to distribute, taking into account the population. One Sawyer Point One filter can provide enough clean water for 100 people a day for 10 years, which is equivalent to a million gallons so the donation depends on the number of community members. In addition, it is necessary to know if there is a Health Center, School, Community Center or even a church in order to donate filters in these places as well. In addition, the donation depends on the number of members of the community. For example, in a school for 100 children, 1 filter is donated and maybe 2 or 3 for a school of 300 or 400 children.

Joint work is carried out with different actors such as the project with the University of Azuay and the Prefecture of Azuay, which seeks to help communities that do not have access to clean water. For example, the Waterbearers organization was able to help the community of Ona and Santa Elena thanks to the support of the University of Azuay and the Prefecture of Azuay for providing the transportation. With this support and translation, it was possible to meet the Decentralized Autonomous Governments of these communities to decide how many filters to donate to a community. In a school for 100 children, 1 filter would be donated. In a school of 350 children, four filters would be donated. Recognizing that water rather than food can cause stomach illness is an important educational step as well the importance of clean water in the first two years of a child's life to prevent diarrhea and parasites.

Difficulties

Many of the communities are very remote, located in deep valleys or open mountaintops and suffer poor distribution of water. For that reason, the communities try to catch rainwater or the water that reaches the houses. However, even the minimum rainwater that falls to the ground is contaminated by animals or other factors.

Thus, it is not only the cost of the filter but also the cost of the distribution, since it is a key component. This type of work is difficult to evaluate, but what they try to do is build a relationship with the community itself so that they can have access to it communicating once a week or through social networks like WhatsApp with the communities to find out what is happening, with the aim of being able to monitor through photographs, videos

and reports in order to maintain up-to-date information on the communities. One of the problems that Jane mentioned is the poor distribution of water in Ecuador since the cities have excellent water, but driving half an hour out of the city you can find communities that do not have access to clean water.

Usually, a subsidy is required to buy the filters, and also there is no distributor of Sawyer Point One filters in Ecuador, so they have to find different ways to ship filters to Ecuador. In addition, Ecuador is a country in which the majority of its inhabitants do not make donations, so The Waterbearers depend 100% on small donations, individual donations from people of all the world to support projects in Ecuador.

Monitoring

As an example of monitoring data, Table 1 shows the different variables that must be taken into account when monitoring and evaluate a community are measured.

Table 1*Monitoring & Evaluation document for Ona*

	INDICATOR	DEFINITION How is it calculated?	BASELINE What is the current value?	TARGET What is the target value?	DATA SOURCE How will it be measured?	FREQUENCY How often will it be measured	RESPONSIBLE Who will measure it?	REPORTING Where will it be reported?	
Goal	Filters for clean drinking water access in rural communities	#Filters to each rural community	50 filters x 200 families	All community members	Checklist questions	Once	Community members and University team	Report University & communities	
	Women learn how to maintain filters								
Outcomes	Improved health for all ages/genders	#Visits per month to health center	Unknown	50% less	Health Center Records	Once	University team	Report University & communities	
	Women's empowerment:								
	a) Knowledge & application of skills re filters	#Women who attended initial workshop who can teach other women	Very limited #	50% more	50% more	Once	University team	Report to University & communities	
	b) Increased time for other livelihoods opportunities for community members (less time on water)	#Hours spent on safe water preparation before and after filters	#Women who maintain filters	50% less	Checklist questions	Once	University team	Report to University & community	

Outputs	Potable water for rural communities	#Filters delivered	Project document	(500 families)	Project document	Once	University team	Report to University & communities
	Increased community health/wellbeing			100%	Checklist	Once		
		#Filters sustainable in communities	GAD, junta, community representative					
	Community members workshop	#Health center visits	Health Center	50% less	Health Center			
		#Community members maintaining filters	Checklist	50% more	Checklist	2 times		
						Once		

Source: The Waterbearers and University of Azuay, 2021.

Monitoring and evaluating becomes a challenge for transportation because The Waterbearers travel to communities located in very small regions and it is financially difficult to be able to do the monitoring that they would like to do which is why social media helps them communicate with communities. This is ideal because they can monitor over a period of two, three or six months a year.

In Santa Elena, Carlos Alvarado, helped The Waterbearers with monitoring and evaluation data through a video asking questions to the people in the community about the donated filters. In this video, there are community members talking about a positive difference in their lives after the donation of the filters, thus facilitating the type of follow-up that The Waterbearers require.

The evaluation through videos was not considered suitable, but over the years most people have mobile devices which allow them to be in contact with these communities and carry the same type of effectiveness in monitoring and evaluation as if The Waterbearers was present.

Benefits

The filters work well for these rural communities because the filter does not need replacement parts or electricity, it just needs to be well maintained, so it is ideal for remote locations. For example, in one remote location the community requested more filters when they saw that the filters really worked.

The daily maintenance of the filters is a very important part. For example, every day at the end of the day the filter must be cleaned in a specific way for bacteria to be eliminated that will keep the filter in good condition. Also, sometimes the water is accompanied by mud which can clog the filter, so it is important to thoroughly flush it.

The communities do not pay any money because The Waterbearers is a fully public charity and so with the money they raise from around the world this allows them to buy the filters and donate them to the communities. The only item The Waterbearers ask of the communities they help around the world is to have a bucket to be able to install the filter, which is evidence of participation to be proud of.

Importance of non-profits organizations

International organizations like The Waterbearers are important to help communities like Santa Elena and Ona, by having an impact on the daily life, for example, with the filter community members may still be walking a mile to get a bucket of water, but when they get home, they can filter it and care of their family.

Non-profits have the capacity to respond to isolated communities more quickly than the government. Massive problems of plumbing installation, for example, can be resolved quickly by dealing directly with community members.

The importance of international organizations is the capacity for immediate help that these institutions can provide. For example, when the 2016 earthquake occurred in Ecuador, Jane was the only person in Ecuador with filters, which in less than 72 hours could be transferred from Cuenca to Manabí, which meant keeping around 5,000 people alive.

5. Discussion

Results Analysis

In Ecuador, the health and quality of life of rural communities is seriously affected by the consumption of poor-quality water, that transmit diseases such as E. coli, Giardia, Vibrio cholerae and Salmonella typhi, which cause cholera and fever which seriously affect health (World Health Organization, 2022).

The objective of this work was to demonstrate the impact of the donation of filters on the health and quality of life of two communities, a coastal community and a mountain community by The Waterbearers. During the collection of the data used in this work the following key points were identified:

In the interview with Jane Brinton, she mentioned that a third of the people in Ecuador do not have clean water, which is a very high number. In addition, large cities have quality water, but if we travel half an hour by car outside the same city, we can find communities that do not have access to drinking water. This can be evidenced by what the INEC (2018) points out that in Ecuador greater equity in access to water has been attempted over the years. However, this equity has not been achieved because if comparing urban and rural areas, we find that

in urban areas 79.1% of the population has safe water, and only 51.4% in rural areas, that is, more than half of the population has poor quality water.

The remoteness of the communities is presented as another problem, since they are located in deep valleys or open mountain tops, so municipal pipes cannot be installed. This, as Torres (2021) indicates, the lack of resources to complete the projects and the distance from the communities are among the main problems that the Municipalities have to expand the drinking water service in the country. Similarly, Torres (2021) indicates that in Ecuador, these problems are related to poor management, distance and lack of economic resources.

UNHCR (2019) pointed out that the scarcity of drinking water forces people to resort to contaminated sources, which can transmit diseases that can cause death. For example, through the interviews carried out in Ona and Santa Elena, it was possible to observe that the people of these communities depend a lot on rivers or irrigation canals to have access to drinking water.

The Pan American Health Organization (s. f.) points out that the deficits in terms of coverage and quality of services tend to be concentrated in low-income groups, vulnerable groups and rural populations. For example, in the interview with Epifania Suarez she describes that she is a low-income person who lives in small coastal community where she did not have access to drinking water.

Monitoring and evaluation data in Ona and Santa Elena demonstrate a 50% improvement in the health of all community members who participated in the filter donation. In addition, it was observed that the community reduces visits to health centers and the hours dedicated to water purification processes by 50%. This can be evidenced by what the Goteo Foundation (s. f.) indicates that the donation of water filters by non-profit organizations facilitates people's access to drinking water, in addition to being able to influence their quality of life.

Within the analysis of the interviews carried out with people from these two communities, it was found that stomach diseases were caused by the consumption of water from rivers or irrigation canals. However, since the donation of the filter, all the people interviewed also agree that The Waterbearers' intervention significantly reduced stomach illnesses. As Macay and Yoza (2019) rightly indicates, non-profit organizations have become advocates of politically neutral water problems and solutions, problems that can be solved with technical knowledge and good governance.

The cost of implementing water filters is low and the maintenance of a filter can be carried out by the same family (Santos et al., 2018). For example, in this project, the communities do not pay any money because The Waterbearers is a completely public charity and therefore, with the money that is raised from all over the world, this allows them to buy the filters and donate them to the communities.

The participatory approach can play an important role, since it improves motivation, increases learning and feelings of ownership that allow the empowerment of the community (Akvopedia, s. f.). For example, in Oña and Santa Elena, the only thing that TW asks of the communities they help around the world is to have a bucket, this is a way for the communities to feel prouder of being part of the project.

One of the main details to mention about the logistics handled by this Organization is the concern and empathy with the communities, since, despite being an organization run by two women who speak only English, the forms for obtaining information are presented in the Spanish language. This with the aim of creating a relationship with the community and in the same way to be able to have as much information as possible. This exemplifies how Macay and Yoza (2019) describe how non-governmental organizations concentrate their efforts on influencing policies, programs, projects and actions together with community participation, so that it is the community itself that can make decisions to achieve social development.

On the other hand, the help provided by The Waterbearers is really important since they not only donate the filter to the communities, but also provide face-to-face training to people in the communities on the use and maintenance processes of the filter. This can be evidenced since, according to Picas Contreras (2001) through their actions, NGOs seek to generate self-management in people and communities, with the aim of turning them into agents of their own development and satisfaction of their needs, such as social development. Similarly, Benedetti and Pelicano (2001) point out that the growing importance of NGOs has led them to become a central actor in the processes of new technologies in rural communities.

Finally, another important aspect to highlight is the intervention of this organization, since it does not need to work with the local government or wait for it to make the decision to help the communities. The organization itself can go to dialogue directly with the communities to learn about their situation. This can be evidenced according to what Macay and Yoza (2019) point out how NGOs have come to help in aspects that the government has not been able to partially correct in society. In the same way, they fulfill an important social

function as defenders of humanitarian social causes, where they do not seek to replace the states, but complete their relief efforts in areas where they are deemed necessary without a lucrative incentive.

Literature Analysis

As for the review of the information on the website of The Waterbearers, it was possible to find its mission and vision, which reflects the desire to allow people around the world access to clean and safe drinking water related to the objective of this research. In the same way, it was possible to find the action carried out by this organization, in working strategically with partners and organizations in the country in which they are providing help on reliable clean water solutions.

Within the work carried out by this organization, it is evident that since 2016 they have provided help in places where people do not have drinking water, places where they have carried out financing initiatives on clean water. The reasons why this organization finds it necessary to provide this type of help is reflected in the documented perseverance of the people who spend hours looking for water every day.

Through links on website, The Waterbearers provided information related to this research, such as the number of people around the world who do not have access to drinking water and the damage caused to people by the consumption of water in poor conditions which can lead to sickness and death. Additionally, there is information about the Sawyer Point One filter, such as its certificate for absolute microns, which prevents the passage of diseases transmitted by contaminated water by 99.99999%. In addition to providing clean water to 100 people a day and producing up to a million gallons, that means 10 years of clean water if the filter is maintained.

The parts of the website most connected to this research are the details of the water projects initiatives in 33 countries through strategic partnerships around the world that have impacted hundreds of thousands of lives. In addition, they divide these water projects into different blocks for each country so that they can be viewed one by one. A general map of the continents is shown to find out where these different initiatives have been carried out. In the same way, the goals that are presented on the website once again contributed to the development of this research as Sustainable Development Goal #6 of the United Nations, designed to guarantee access to water and sanitation for all. A blog has been developed aimed at the work carried out on drinking water in different communities worldwide and on other issues related to drinking water.

6. Conclusion

The water crisis stems from poverty, inequality and unequal power relations. The insufficiency of financial resources is a serious limitation to achieve national water objectives in most countries and especially in rural areas. Within these communities are the same people through local organizations that ensure the provision of the service.

With the analysis of the results that are part of this work, it can be concluded that the donation of water filters by The Waterbearers generates a considerable positive impact on health and quality of life in a rural and coastal communities while not representing any additional costs. With this, it is sought that more rural communities manage to create a relationship with this type of organization in order to improve access to drinking water.

The donation of filters also allows the time that people used to purify the water to be used for other subsistence activities that can improve their quality of life.

Many international non-profit organizations only go through the donation stage. However, apart from the donation, The Waterbearers also conducts face-to-face training for the communities in order to teach them how to use the filter, how to install it and how to maintain it, which becomes an important factor for the community itself to be trained in being able to filter its own water and in this way guarantee the human right to access to safe, acceptable, accessible and affordable water. In this way, the human right to access to safe, acceptable, accessible and affordable water is guaranteed.

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Appendix 1

Questions for Jane Brinton interview:

Logistics

1. How do you assess the needs of the community related to drinking water?
2. Where do filters come from?
3. To whom and where will the filters be distributed?
4. On what basis do you decide how many filters a community need?
5. What kind of reports should you make?
6. How do you usually find out about a community that does not have clean water?
7. Who do you have to talk to start with the donation of the filters? Or how is the coordination to start with the donation of the filters?
8. Do you think that the authorities of the different rural communities do a good job of guaranteeing access to drinking water for their population?
9. How important do you consider the leaders of each community?

Welfare

1. How did you get involved in Waterbearers?
2. How do you monitor and assess the evaluability of water filters?
3. How different has the donation of filters been in Ecuador that cannot be found in other communities?
4. How do you measure that water filters improve health and quality of life?
5. Does the donation of the filters have a good result for these rural communities?
6. Is it necessary to maintain the filters?
7. Do the communities pay any money?
8. What kind of challenges do you encounter when carrying out monitoring and evaluation data?
9. What important message do you understand with the videos before and after the donation of the filters?