



**MINING, ENVIRONMENTAL HEALTH, AND HUMAN SECURITY:
Evaluation results of the quality of life and water in Abisinia (Colón),
Nueva Esperanza (Atlántida), and San Francisco Locomapa (Yoro),
and the responsibility of the state in Honduras.**

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**“Mining, Development, and Justice in Honduras:
A Community-based Initiative for Education and Advocacy”**

**MINING, ENVIRONMENTAL HEALTH, AND HUMAN SECURITY:
EVALUATION RESULTS OF THE QUALITY OF LIFE AND WATER IN ABISINIA (COLÓN),
NUEVA ESPERANZA (ATLÁNTIDA) AND SAN FRANCISCO LOCOMAPA (YORO),
AND THE RESPONSIBILITY OF THE STATE IN HONDURAS**

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(1) EXECUTIVE SUMMARY



(1) EXECUTIVE SUMMARY

Governments, public institutions, and national and international companies that promote the extractive model of development in Honduras maintain that the expansion of mining activities increases job opportunities and produces revenue for national development. In their promotion of mining, these organizations and their supporters often ignore, minimize, or conceal the negative effects of mining on human security, the quality of life of communities, and the environment.

To gain a complete picture of the impact of the extractive model, it is therefore important to make visible and evident the loss of health and quality of life, water contamination, the deterioration of soils, forests and biodiversity, and the conflict that destroys the social fabric of the communities affected by the expansion of mining. This is precisely the purpose of the study entitled “Mining, Environmental Health and Human Security: Evaluation Results of Quality of Life and Water in Abisinia (Colón), Nueva Esperanza (Atlántida) and San Francisco Locomapa (Yoro), and the Responsibility of the State in Honduras” conducted by two Jesuit organizations: the College for Public Health and Social Justice at Saint Louis University (SLU) in Missouri, United States, and the Reflection, Research and Communication Team (ERIC) in Progreso, Honduras.

In the conduct of this research, the SLU and ERIC research team surveyed 206 households in the rural communities of Abisinia, Nueva Esperanza, and San Francisco Locomapa, and tested 136 samples of home water and of water from 9 watersheds or basins to evaluate water quality in the three study communities. To interpret the results of the surveys, human security was used as an alternative methodological framework to the traditional concept of security because it sheds light on the impact of the extractive model on economic, food, health and environmental security, on personal security, and of the community, and the political security of the residents as Honduran citizens. Unlike traditional state-centered notions of security, human security is person-centered and requires the creation of political, social, environmental, economic, military, and cultural systems that together give people the building blocks of survival, livelihood, and dignity. Also, the ecological model in environmental health was used as an integrating method to understand the person and their quality of life not in an isolation but as part of a specific context of family, community, society, and state.

The results of the household surveys show that most of the people in Abisinia, Nueva Esperanza, and San Francisco Locomapa live in a situation of vulnerability and insecurity characterized by poverty, low levels of education, food insecurity, lack of safe water and adequate sanitation services, lack of health insurance and access to affordable and quality health services. National data indicate that the vulnerability and insecurity profile of these communities is similar to that of rural towns and poor urban neighborhoods that make up 68% of the population in Honduras.

Part of this insecurity profile is the violence experienced by the population, especially the poorest, in Honduras: the immediate and visible violence of trauma and death that is shown daily in the media, and the slow and invisible violence that persists through time and that gradually weakens health and shortens life due to the lack of basic public services, food and water insecurity, and preventable diseases that were not avoided due to lack of access to insurance and health services. The Covid-19 pandemic has further eroded the already precarious health system in Honduras and has increased the vulnerability of communities in need of preventive and medical care.

Furthermore, in their survey responses, the residents of Abisinia, Nueva Esperanza and San Francisco Locomapa expressed their concern about water and their belief that mining causes environmental problems. They also said that they do not believe that mining can bring benefits to their communities, and that they disagree with the influx of mining projects into their communities. This rejection of mining is shared by an increasing number of citizens and municipalities that have declared themselves in resistance against extractive industries and policies, and have decided to be free of mining, which is evidence that there is no national consensus favorable to extractive policies and practices in Honduras.

Also, this study demonstrates that the human insecurity experienced in communities like Abisinia, Nueva Esperanza, and San Francisco Locomapa is the result of the failure of the Honduran state captured by extractive elites organized in networks of power, corruption, and impunity. This failure keeps the state from complying with the minimum functions of protecting the national territory, preventing crime and threats to citizen security, protecting essential freedoms and rights, promoting education, health care, investment in infrastructure and economic development, and regulating property and the use of environmental goods. The failed state in Honduras and its extractive policies seeks to sustain itself with militarized security policies that, as evidenced in this study, have produced a stagnation and decline in the indicators of human security, social progress, and peace.

In the face of predatory extractivism, popular resistance to mining also expresses the need to seek alternative ways of economic development, social and political coexistence, and protection of natural resources in Honduras and in other countries. Transitions to post-extractivism that have already been proposed seek alternative ways to eradicate poverty, to sustainably use and protect natural resources such as water and land, and to value traditional knowledge and practices of health care, food production, and environmental sustainability.

From a faith perspective, Pope Francis' encyclical *Laudato Si* also points to alternative paths to the extractive model of development based on a vision of integral ecology and ecological conversion founded on the ethical principle of the common good. The common good is defined in *Laudato Si* as a principle based on the human person endowed with basic and inalienable rights ordered to his or her integral development. This principle can be understood in light of this study as economic security, food security, health and environmental security, security of the person and the community, and the political security of the citizens of a country. *Laudato Si* affirms that it is the obligation of society and especially of the state to defend the common good and ensure that decisions on extractive industries' projects are not dominated by selfish and short-term prospects, but instead be informed by the sincere concern for the good of all citizens, especially of the most vulnerable, as well as for the good of the earth, our common home.

With the presentation of this report, the research team of SLU and ERIC fulfills its commitment to obtain and offer rigorous evidence that serves as an instrument for social and political change and the promotion of the community's health and well-being. We hope that this report contributes to the search for alternative ways of social, political, and environmental coexistence that fulfill the aspiration of all Hondurans, especially the most vulnerable, to live lives with full health and dignity in healthy environments.

(2) INTRODUCTION



(2) INTRODUCCION

2.1 Background.

2.1.1 The splendor and misery of mining in Honduras.

In her book "Splendor and misery of mining in Honduras"¹ Leticia de Oyuela recounts the historical development of mining activities in Honduras and the enormous wealth obtained from the exploitation and sale of minerals. This is the splendor of mining. However, "after centuries of swarming through the bowels of the earth, the history of mining shows that all that accumulated capital never stayed in the country."² This is essentially the character of the extractive model³ and of the misery of mining: extracting resources that are not destined for local human development and that do not benefit the majority of the population.

Governments, public institutions, and national and international companies that promote the extractive model of development maintain that the expansion of mining activities creates jobs and produces financial resources for national development. This discourse of the splendor of mining often ignores, minimizes or hides the negative effects of mining on human security, the quality of life of communities, and the environment. For a complete vision of the impact of the extractive model, it is therefore important to bring to light the misery evidenced in the loss of health, the deterioration of the quality of life, water contamination, the degradation of soils, forests and biodiversity, and the conflict that destroys the social fabric of the affected communities.

2.1.2 Effects of mining on the environment, quality of life, and human security.

Mining activities alter the environment not only in the areas of operation but also in adjacent areas that include agricultural land, water basins, and populations and protected land such as indigenous people's territories. These changes affect the environment and human health even after the end of the extraction cycle.⁴ Mining activities contribute to soil degradation (compaction and erosion) and to the decline of agricultural production. In addition to the loss of vegetation cover, erosion contributes to increased sedimentation of water sources, streams and basins, which affects the quality of water for human consumption and the biodiversity of water streams.⁵

Mining is responsible for some of the largest releases of toxic metals to the environment.⁶ These discharges affect the air, the soil, and the water. Numerous studies indicate that the most significant impact of mining activity is on water quality and the availability of water resources. Mining operations often consume large amounts of water, which can reduce its availability to other users.⁷ In Honduras it was reported that in nine years of operations the Goldcorp San Martín mine depleted 19 of the 23 rivers in the Siria Valley.⁸ The extraction of gold, silver and other metals by the Canadian company Minerales de Occidente, S.A, MINOSA affected water sources because "the mining company devoured several hills"⁹ where water is produced.

In addition, water mixed with chemical substances to separate metals and acid mining drainage are the main concerns since they contain toxic metals and increase the levels of cyanide and nitrogen compounds that affect water quality. The drainage of acidic waters has been called "perpetual contamination" because it can continue indefinitely after the end of the extraction cycle¹⁰ with the consequent damage to biodiversity, water, and human health. In Honduras, 54 mining lots in exploration and exploitation pose risks to 46 water sources including the Wampu, Juticalpa, Azacualpa, Yeguaré, Choluteca, Guasaule, Mezapa, Aguán, and Lake Yojoa rivers.¹¹

The Jesuit Reflection, Research and Communication Team of Honduras (ERIC) reported the 2003 a spill of 300 to 500 gallons of sodium cyanide solution in the Lara River that killed 18 thousand fish, frogs, and other animals near the San Andrés mine in Honduras operated by a subsidiary of Aura Minerals of Canada.¹² Metals and toxic substances for health and the environment such as mercury, arsenic, cyanide, lead, cadmium and hexavalent chromium have been detected at the Gold Corp. Marlin mine in Guatemala, the Commerce

Group's San Sebastián mine (abandoned) in El Salvador, and the El Limón de Tritón Minera SA mine in Nicaragua.¹³

Lastly, "the most direct effects of extractive activity occur in the field of health."¹⁴ As defined by the World Health Organization, health has a broad and inclusive meaning: it is not only the absence of disease but the complete physical, mental and social well-being of people and populations.¹⁵ For example, gold mining has been rated as one of the most destructive activities due to the contamination of water with mercury and cyanide and its impact on health.¹⁶ The cost in health for many communities has been very serious in terms of risks of accidents and exposure to toxic pollutants, disease, and decreased quality of life and life expectancy. This is the cost that is generally not considered in the calculations of costs and benefits of extractive activities. In Honduras, the case of the Goldcorp company mining operations in the Valle de Siria is the most worrisome concerning the impact on human health. A report from the Tegucigalpa forensic science laboratory indicated that high levels of cyanide, lead and arsenic were found in biological samples from 61 residents of Valle de Siria¹⁷ related to acid water and toxic metals from the mine.¹⁸

In addition to causing damage to the environment and health, extractive industries provoke conflict, violence and insecurity. The observatory of mining conflicts in Latin America pointed out that 137 mining and energy and hydrocarbons production concessions in Honduras are in indigenous and Afro-Honduran territories, "increasing the conflict in the country considered one of the most dangerous for the defense of the environment."¹⁹ Examples of conflicts generated by mining include the cases of Guapinol (Colón), El Triunfo (Choluteca), Valle de Siria (Morazán), San Andrés (Copán), Santa Bárbara and Nueva Esperanza (Atlántida).²⁰

The case of Nueva Esperanza together with the case of the El Venado mine in the Montaña de Botaderos national park and the case of the Tolupán tribe in San Francisco de Locomapa are described in depth in the report "Environmental impact of mining in the northwestern region from Honduras in light of three case studies: Montaña de Botaderos (Aguán), Nueva Esperanza (Atlántida) and Locomapa (Yoro)." This is the first report of the project "Mining, Development and Justice: A Community Initiative for Education and Advocacy" published in 2016.²¹ One of the conclusions of this report indicates that the "diagnosis and appraisal of the insertion of the extractive model in Honduras, as well as the experience of residents in the three study communities, shows that, far from contributing to improve the well-being and development of local populations, extractive industries have brought about serious human rights violations and an increasing deterioration of natural resources and the livelihoods of communities."²²

2.1.3 A call from the community.

In view of the growing concern about the negative impact of mining in Honduras, in September 2013, a delegation of the Jesuit ministries in Canada and the USA. visited the northern part of Honduras. Fernando Serrano, the author of this report, was part of this delegation.²³ The delegation was organized by the Jesuit Conference of Canada and the USA, and hosted by Father Ismael "Melo" Moreno, S.J., director of Radio Progreso and ERIC, two organizations sponsored by Jesuits in El Progreso, Honduras. The primary purpose of the visit was to learn about the experience of the residents in rural communities in the Departments of Atlántida and Colón affected by mining, deforestation, and conflict.

For example, in the community of Nueva Esperanza, in the municipality of Tela, Department of Atlántida, residents said they have been fighting to protect water and land from destruction caused by the La Victoria mining company.²⁴ One of the community members said that "there have already been dead fish found in the river, which flows in three different colors. Cutting down trees to make way for the mine has already caused problems."²⁵ This villager also said that "we have been threatened because we have defended the poorest, the land and the water"²⁶ and asked that laboratory tests be carried out on the water as he considered it important that the community have evidence of the environmental effects of mining. This visit to communities and listening to the difficult experiences of vulnerability and violence marked the beginning of an investigative process for the social action of Jesuit organizations from Canada, the United States, and Honduras that culminates with the presentation of this research report.

2.2 The Jesuit commitment to social analysis and action research.

On April 1, 2014, the Jesuit Conference of Canada and the United States took the initiative to sponsor an international project for Social Analysis and Action Research Grants (SAARG) entitled "Mining, Development and justice in Honduras: A community-based initiative for education and advocacy." One of the purposes of this project is to strengthen the advocacy activities of the Jesuits through action-oriented research and social analysis aimed at organization, community, and political change. The College for Public Health and Social Justice of Saint Louis University and ERIC agreed to design and implement this project. Saint Louis University (SLU) is a Jesuit university located in St. Louis, Missouri, in the United States.

The central objective of the SAARG project is to examine the environmental, political, and social impact of the extractive model on development strategies in Honduras, with a special concern about mining activities and their effects on vulnerable communities. Due to the complexity of the research on the impact of the extractive model in Honduras, the team of researchers made up of SLU and ERIC approached this research from two perspectives. The first perspective focused on the historical process of insertion of the extractivist model in Honduras and the affectation of human rights such as the right to prior consultation. With this frame of reference, three cases were investigated: (1) The case of the El Venado mine in the municipality of Bonito Oriental near Abisinia in the Department of Colón; (2) the case of the Victoria Minerals Corporation in the Florida sector near Nueva Esperanza in the municipality of Tela, Department of Atlántida; (3) and the case of logging and mining (antimony) of the Tolupán indigenous population in San Francisco de Locomapa in the municipality of Yoro, Department of Yoro.

Research in these three communities brought to light the experience of the impact of extractive activities, especially in water, conflicts caused by the exploitation of minerals and forests, violence perpetrated against residents, and resistance efforts to protect their natural resources. These results are presented in the first report of the SAARG project entitled "Socio-environmental impact of mining in the northwestern region of Honduras in light of three case studies: Montaña de Botaderos (Aguán), Nueva Esperanza (Atlántida) and Locomapa (Yoro)" published in August 2016.

The second perspective focused on water, health, environmental problems, and mining views in the three communities mentioned that were obtained through household surveys. Due to the urgent concern on water expressed by the community, in addition to household surveys, an evaluation of water quality was conducted in homes and in rivers and streams where the water that the community uses comes from. The analysis and interpretation of results from this perspective are grounded in the methodological framework of human security and the ecological model of environmental health. This, the second report of the SAARG project, presents the results of the surveys of 206 households, and of the water quality evaluation of 136 samples of water for human consumption and of water from 9 basins in the three target communities of the project: Abisinia in the Department of Colón, Nueva Esperanza in the Department of Atlántida, and San Francisco Campo in Locomapa, Department of Yoro.

2.3 Research objectives and procedures.

The main objective of this study is to generate rigorous and reliable evidence on the impact of mining and extractive activities to inform and support organizing, educational, and advocacy initiatives in Honduras, the USA and Canada. This is consistent with the purpose of the SAARG project to strengthen the Jesuit capacity for social transformation through action-oriented research.

To design and implement the project "Mining, Development and Justice: A community initiative for education and advocacy", a research team was formed with the SLU principal investigator and advisors and with members of the research area of the ERIC in Honduras. This team developed a conceptual framework appropriate for the research objectives, questions, and needs of the project. This framework includes the following aspects of the impact of mining and extractive activities in Honduras:

- Critical evaluation of the current development model in Honduras with a focus on the extractive industries and their relationship with the market and international political factors.
- Focus on environmental and socio-economic risks and the impact of mining activities, especially on local communities regarding employment opportunities, education, access to natural resources (mainly water and land), water security and food security, the social fabric and the factors that alter family and community life.
- Assessment of the links between human rights, security problems, and mining activities.
- Evaluation of the governance and power relations related to natural and mineral resources in Honduras, particularly the regulatory aspects, programs and policies of the public sector and their implications for local communities and the development model of Honduras.
- Translation, dissemination and application of the information and knowledge generated by this project into "knowledge for action" that can be used by local communities, organizations and decision-makers in organization, education and advocacy activities.

Due to the complexity of the impact of the extractive industries in their different aspects, the conceptual framework for this project necessarily required that the research be multidisciplinary and use a variety of qualitative and quantitative methods to collect information and interpret results. Qualitative methods included primary sources such as interviews and focus groups, and secondary sources of previously published materials. These methods were mainly used in the first part of the SAARG project and in the report entitled "Socio-environmental impact of mining in the northwestern region of Honduras in light of three case studies: Montaña de Botaderos (Aguán), Nueva Esperanza (Atlántida) and Locomapa (Yoro)."

In the second part of the SAARG project, the results of which are presented in this report, the research used quantitative methods including a household survey and household and watershed water quality assessments as primary sources of information.

Within the conceptual framework it is important to note that participatory community-based research plays an important role in this research. This methodological approach requires communities to be involved as participants in the design, implementation, and evaluation phases of a research project. Participatory community-based research responds to problems and needs of importance to the community and aims to eliminate social disparities, achieve social change, and achieve community benefits. Consultations with local residents and organizations and the various field visits that were carried out in the execution of this study were made in a manner consistent with the community-based participatory research methodology.

Participatory research also requires sharing results with study participants and with the public. A summary of the most important results of the household surveys and the water quality evaluations of households and watersheds were released in the communities that participated in this study in July 2016. This report fulfills the commitment to deliver to the public the final report of all results of the study on mining, environmental health and human security in the communities of Abisinia, Nueva Esperanza, and Locomapa in Honduras.

(3) METHODS



(3) METHODS

Due to the interest in doing research from the perspective of the community, in this study human security has been used as a methodological framework for evaluating the impact of the extractive model concerning the risks and threats to economic and food security, to health and environmental quality; to personal and community safety; and to the political security as Honduran citizens of the people living in the communities subject of this research study.

3.1 Human security as a person-centered methodological framework.

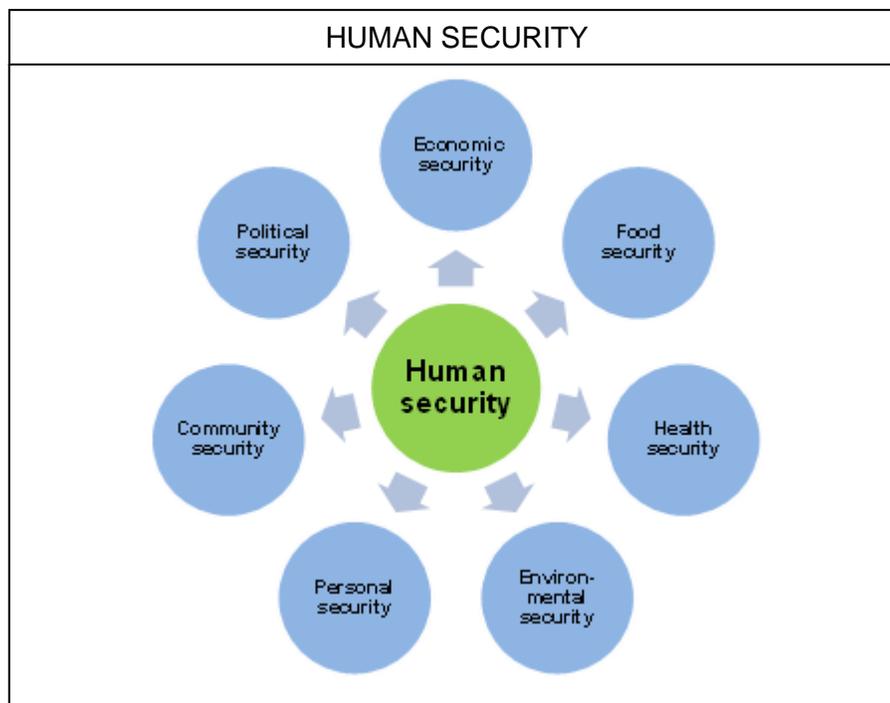
Traditional notions of national security and military security are not adequate to understand the multiple threats to people's security caused by poverty, environmental pollution, epidemics, natural disasters, and violence.²⁷ As the 1994 Human Development Report of the United Nations Development Program (UNDP) states, the "concept of security has been interpreted too narrowly for too long: as security of the territory against external aggression, or as protection of national interests in foreign policy or as world security against the threat of a nuclear holocaust. Security has been related more to the nation-state than to the people."²⁸

Since the 1990s, "human security" has been proposed worldwide as an alternative to the traditional definition of security. Unlike the traditional concept of state-based security, the concept of human security emphasizes the person and their needs and rights. "Human security is human-centered."²⁹ In 2003 in the report "Human Security Now" of the United Nations Commission on Human Security, human security was defined as follows:³⁰

"Human security is about protecting the vital essence of all human lives in a way that enhances human freedoms and the full realization of the human being. Human security means protecting fundamental freedoms: freedoms that are the essence of life. It means protecting humans against critical (serious) and pervasive (pervasive) situations and threats. It means using processes that are based on the strength and aspirations of the human being. It means the creation of political, social, environmental, economic, military, and cultural systems that together provide the cornerstone of human survival, livelihoods, and dignity."

The UNDP 1994 Human Development Report also defined **seven security categories or elements** associated with economic, food, health and environmental quality needs. The elements of security of the person, the community and society as a system of political relations are also included. All these elements are essential parts of human security, as shown in Figure 1 below.

Figure 1: Human Security: Categories or Elements of security.



Based on the seven categories of human security, risks and threats to human security can be classified³¹ as indicated in the following table.

Table 1: Types of security, risks and threats to human security.

Types of human security	Examples of risks and threats
Economic security	Persistent poverty, underemployment, unemployment.
Food security	Lack of access to sufficient, safe and nutritious food, hunger, starvation.
Health security	Infectious and chronic diseases, mental health disorders, accidents, contaminated food and water, lack of access to healthcare and health insurance.
Environmental security	Exposure to toxic metals and substances, environmental contamination, degradation of water, land, forests and other natural resources, disasters, climate change.
Personal security	Conflict, violence, crime.
Community security	Conflict due to economic and environmental interests, racial, ethnic, religious and identity conflicts, human rights abuses of vulnerable populations.
Political security	Political repression, corruption, criminalization of protest, human rights abuse and violations.

Health security and environmental security are of special importance for studying the day-to-day experience of communities in Honduras affected by extractive industries. From the point of view of human security, the concept of security involves not only military forces and weapons. It is also related "to watersheds, agricultural lands, forests, genetic resources, climate and other factors that rarely appear in the minds of military experts and political leaders."³² This is security seen from a socio-ecological perspective.³³ As stated in a policy recommendation document for the Secretary of the United Nations:³⁴

Environmental security focuses on problems such as pollution and the depletion of water resources, the deterioration of arable land, the destruction of forests and the alteration of the natural cycles of ecosystems that cause or contribute to increased vulnerability of people and communities, conflict and violence, and the deterioration of social and political stability.

Safety and health as concepts of reference for public policies have their historical foundation in the constitutions of the World Health Organization (WHO) and the United Nations. In the constitution that gave rise to the WHO in 1948, a definition of health was proposed³⁵ that was expanded in 1992.³⁶ According to these definitions:

Health is a state of complete physical, mental and social well-being, and not only the absence of affections or diseases (WHO, 1948). Health is only possible where resources exist to meet human needs and where the living and working environment is protected from pollutants, pathogens, and life-threatening physical hazards (WHO, 1992).

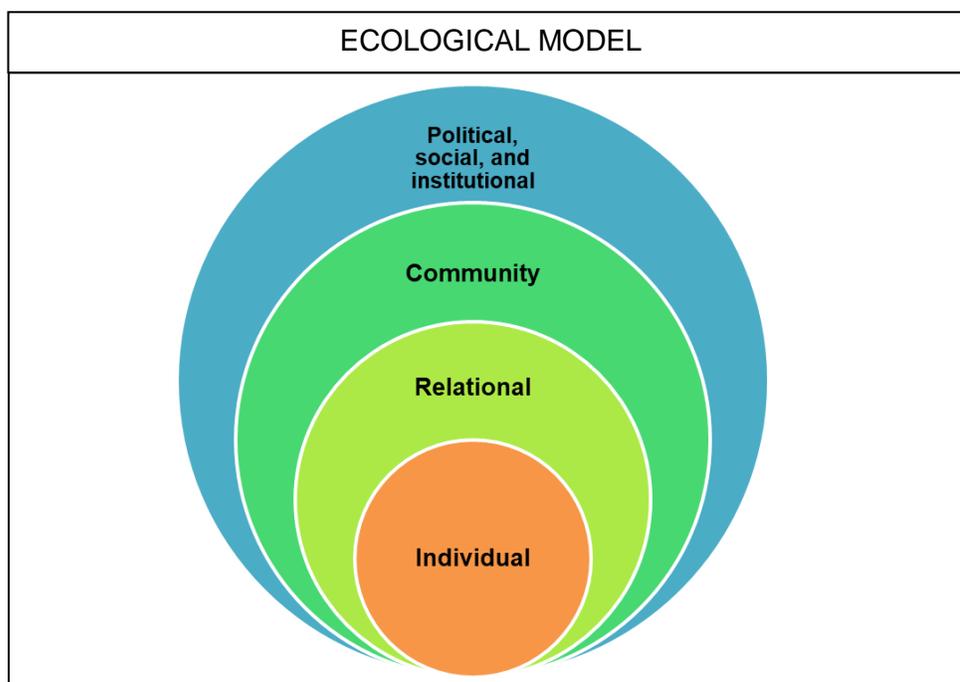
Health as a right and its relationship between health and safety was clearly established in the WHO constitution, which states that "the enjoyment of the maximum degree of health that can be achieved is one of the fundamental rights of every human being, without distinction of race, religion, political ideology or economic and social condition." "The health of all peoples is a fundamental condition for achieving peace and security."³⁷

3.2 Case study and the ecological model.

The case study methodology was selected for the design and implementation of this research project and for the analysis and interpretation of results. This methodology has been applied in various social sciences and public health fields because of its usefulness in understanding particular situations or phenomena with more depth. The study of cases does not imply that these are isolated and that they are not useful for making generalizations. On the contrary, specific cases may reflect a larger reality and therefore the results of case studies can serve to provide more clarity on situations and problems that exist in broader regional and national contexts.³⁸

In addition to the case study methodology, the ecological model has been used to relate the particular experience of the three communities to the Honduran national context. The ecological model in environmental health comes from various theoretical perspectives of the health-disease process.³⁹ This model focuses on the individual and his or her personal characteristics not in an isolated way but as part of a specific context that, in the form of circles or areas, surround the individual and constitute the social fabric of the person, the community, and the country. The social fabric is the set of networks "that constitute an asset for individuals and society as it allows them to expand their options and opportunities to improve their quality of life. Society exists as a social fabric of its citizens; the greater the social fabric, the stronger the society."⁴⁰

Figure 2: Ecological model.



In the ecological model, the relational circle is the closest to the individual and is made up of the person's family, friendship and work relationships. Household surveys were used to obtain information from the individual and relational circles. The community circle includes community organizations such as schools, colleges, workplaces, churches, cooperatives, and non-governmental organizations. Focus group conversations and the historical memory of the community were used to obtain information about the community circle. Finally, the political, social and institutional circle includes public organizations, laws, public policies and norms that govern social coexistence. Information on this circle was obtained from secondary sources (reports, studies, research articles, and the media). Human security focuses on the person and their closest relationships as part of a community and a particular political, social, and institutional context.

3.3 Selection of research populations and sampling.

The ERIC team initially selected three areas of interest for this project: the Aguán Valley in the Department of Colón, the Arizona parish in the Department of Atlántida, and the Locomapa area in the Department of Yoro. The following criteria were used for the selection of specific communities: (a) the situation of vulnerability in terms of poverty and lack of resources; (b) the concern expressed by residents about water and other essential resources; (c) local mining activities and their impact on the community; and (d) the presence of advocacy organizations such as religious institutions and non-governmental organizations that can support the execution of the project.

With these criteria and based on variables such as infrastructure, resources and distances, the following communities were finally selected for this research.

STUDY POPULATION 1: La Abisinia (town), in the Lower Aguán Valley, near Tocoa, in the Department of Colón.

STUDY POPULATION 2: Nueva Esperanza, in the parish of Arizona, municipality of Tela, in the Department of Atlántida.

STUDY POPULATION 3: San Francisco campo, in the Locomapa area, in the municipality of Yoro, Department of Yoro.

3.4 Household surveys and water quality evaluation.

The household survey for the project “Mining, Development and Justice of Honduras: A community-based initiative for education and advocacy” was designed based on four factors: (a) the general objectives of the research; (b) previously validated studies and questions on environmental health; (b) the concerns of the population regarding water, natural resources and mining; and (d) the education, advocacy and community support needs of the ERIC.

The purpose of the survey is to obtain primary information on the socioeconomic reality of the target populations, the food security of the inhabitants, the situation of use and access to water, essential aspects of human health and environmental risks, and opinions on mining.

The survey has 31 questions grouped into three sections. The first section “Socioeconomic indicators” has 10 questions on demographic and socioeconomic indicators that include the number of people living in the home, the property of the home, the race or ethnicity of the respondent, educational services that exist in the community, level of education, occupation and access to electricity, socioeconomic stratification as an indicator of income and poverty, and food security. The second section “Water” in the survey has 8 questions about water access and use, and concerns and perceptions about water safety. The third section “Environment and health” has 13 questions that include aspects of environmental sanitation, access to health services, perception of environmental risks in the community, and opinions about mining.

The survey and research protocol were reviewed and approved by the Saint Louis University Ethics Committee. This approval assures the methodological and ethical validity of the study, the respectful treatment of the participants, and the scientific and ethical management of all the information obtained in the surveys.

In preparation for home visits, all interviewers were trained in research involving humans in accordance with the United States regulations applicable to this project. These regulations protect research participants by ensuring the confidentiality and management of all information in accordance with security standards adopted by Saint Louis University and the ERIC.

Population sampling for the administration of surveys was done by applying a statistical formula for finite populations that is used for survey research. With the application of this formula, the population samples were obtained in each target community, as indicated in the following table.

Table 2: Population sampling calculation.

No.	Community	Municipality/Area	Number of families	Sample size	Confidence/ Error
1	La Abisinia	Población 1, Tocoa, bajo Aguán (Colón)	623	188	90 % C* y 5% EM*
2	Nueva Esperanza	Población 2 Arizona, Tela (Atlántida)	38	33	90 % C y 5% EM
3	San Francisco Campo	Población 3: Locomapa (Yoro).	52	44	90 % C y 5% EM
TOTALES			713	265	

(* "C" corresponds to confidence level and "EM" corresponds to the standard error of the sample mean).

The size of the samples in Table 2 is a statistical reference to determine the ideal number of surveys. The research team was able to complete 206 surveys in the three study communities, which is equivalent to 77.7% of the total population sample size.

(4) RESULTS



(4) RESULTS

A team of survey interviewers including Fernando Serrano, the Saint Louis University principal investigator, and members of ERIC's research team visited a total of 206 homes in the three target areas of the project: (1) Abisinia, near Tocoa, in the Aguán valley; (2) Nueva Esperanza, in the municipality of Arizona, near Tela; and (3) San Francisco, in the Locomapa area, near Yoro. The total of 206 households surveyed in the period July 29 to August 5, 2015, represents 77.7% of the total population sample initially projected. Regarding the acceptance of the survey, the majority (more than 90%) of people in the households visited agreed to participate in the survey.

Table 3 below indicates the total number of surveys in the three study communities (206) and the number of surveys in each of the communities. The largest number of surveys (148 or 71.8%) were carried out in La Abisinia as it is the largest population. In Nueva Esperanza 28 surveys were completed (13.6%) and in San Francisco Campo 30 surveys were completed (14.6%).

Table 3: Number of surveys administered in each community.

Target population	Frequency	Percentage	Valid percentage	Accumulated percentage
Nueva Esperanza	28	13.6	13.6	13.6
Abisinia	148	71.8	71.8	85.4
San Francisco Locomapa	30	14.6	14.6	100.0
TOTAL	206	100.0	100.0	

(Important note about percentages in tables and figures: the SPSS program was used to make the statistical calculations of the survey. This program makes automatic approximations or rounding of decimal figures in a standard way in the statistics. Therefore, the sum of valid percentages or accumulated percentages is not always 100.)

When the survey team members walked through neighborhoods and streets to knock on the doors of a house, who answered and agreed to participate in the survey? Most of the respondents were women (71.8%), most of them mothers (62.1%) who oversaw the care of the house and other household members (children, youth, older adults).

The most important results of the household surveys and water assessment in the three target populations of this study are described below. Additional tables and figures of results are included as appendices.

4.1 Socio-economic profile of study communities.

The first section entitled "Socioeconomic indicators" of the household survey has 10 questions about the number of people living in the household, the property of the home, the race or ethnicity of the respondent, educational services that exist in the community, level of education, occupation and access to electricity, socioeconomic stratification as an indicator of income and poverty, and food security. This section on the demographic profile of the study communities presents the results on the number of people living in the home, sex, age, relationship, race and ethnicity. The results on education and housing are presented in section 4.2 under economic security. Due to the importance of food security, the results of questions on this dimension of human security are described separately in the next section 4.3.

Question 1 of the survey sought to obtain information on the number of people living in the home, their age and their relationship. The following table summarizes the results of question 1.

Table 4: Number of people living in the household - all study populations.

Target population	Frequency	Percentage	Valid percentage	Accumulated percentage
Nueva Esperanza	127	11.9	11.9	11.9
Abisinia	782	73.2	73.2	85.0
San Francisco Locomapa	160	15.0	15.0	100.0
TOTAL	1069	100.0	100.0	

Table 4 above shows that the total number of people living in the surveyed households is 1,069. In Abisinia (Tocoa), the largest population, 782 surveys were completed in four neighborhoods: Barrio Nuevo, El Centro, El Coco, and Las Brisas.

Regarding the number of people in each household, an average of approximately 5.4 people was found for all the target populations. The average for Abisinia was 5.5; the average for Nueva Esperanza was 4.5; and the average for San Francisco was 5.3. Most households have 3 to 6 people (66.5%) and 7 to 10 people (22.8%) in all study populations, as indicated in Table 5.

Table 5: Number of household members by intervals. **Table 6:** Number of household members by age group.

	Frequency	Percentage	Valid percentage	Accumulated percentage
1	3	1.5	1.5	1.5
2	11	5.3	5.3	6.8
3-6	137	66.5	66.5	73.3
7-10	47	22.8	22.8	96.1
11-15	7	3.4	3.4	99.5
16-20	1	0.5	0.5	100
Total	206	100	100	

	Frequency	Percentage	Valid percentage	Accumulated percentage
0-10	294	27.5	27.5	27.5
11-20	304	28.4	28.4	55.9
21-30	152	14.2	14.2	70.2
31-40	109	10.2	10.2	80.4
41-50	72	6.7	6.7	87.1
51-60	65	6.1	6.1	93.2
61-70	44	4.1	4.1	97.3
70+	29	2.7	2.7	100
	1069	100	100	

Table 6 summarizes the information on age in groups of 10 years. The age range of people living in the surveyed households goes from less than one year to more than 70 years. However, most households consist of young people where 27.5% of the population (294) are under 10 years old and 28.4% (304) are between 10 and 20 years old. These two age groups account for 55.9% of the surveyed households. These percentages of under 20 people reflect the broad-based population pyramid of Honduras, which shows that 49.7% of the rural population is under 20 years of age.⁴¹

Question 1 also obtained information on the sex of the household members. The results indicate that 51.4% (550) of the household members are women, while 48.4% (517) are men in the three study communities.

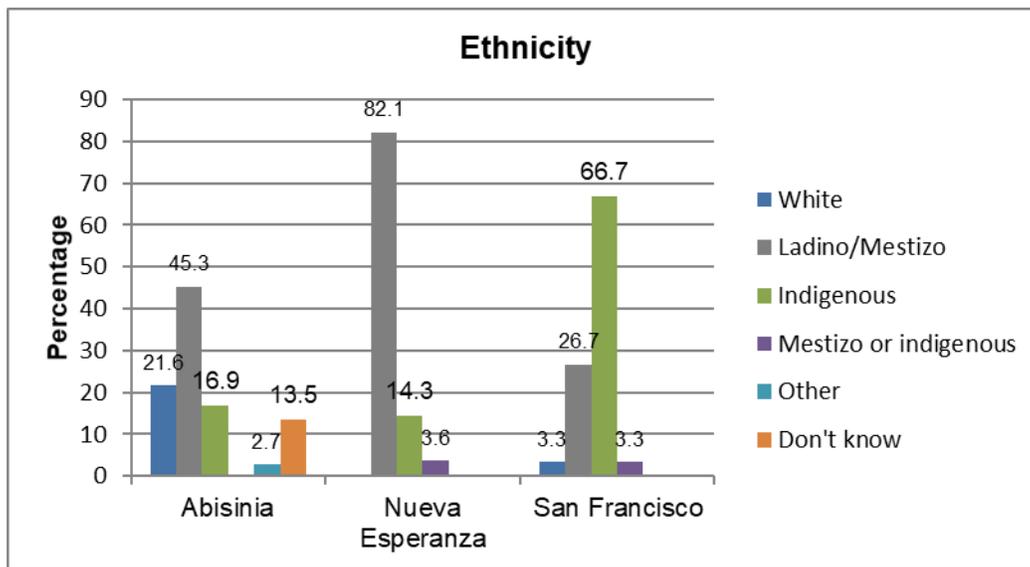
Finally, regarding the relationship of kinship or role in the home, the largest group includes sons and daughters, followed by mothers and fathers. Less numerous groups include grandchildren, granddaughters, husbands, and daughters-in-law. The rest of the household members include male and female companions, brothers-in-law, nephews and grandparents. In conclusion, several generations live in homes in nuclear families and extended families.

Question 2 is about home ownership. The results will be reported below along with the results of electricity services and social stratification.

Question 3 sought to obtain information on the self-identification of race or ethnicity of the respondents. The results indicate that people who identify as “blanco” or white are found in small percentages in the three communities. People who identify themselves as Ladino are the most numerous in Abisinia (45.3%) and Nueva Esperanza (82.1%), in contrast to Locomapa where only 26.7% identified themselves as Ladino. (“Ladino” means mestizo or mixed Spanish and indigenous descent).

Those who identified themselves as “indígena” or people of indigenous descent were found in the three target populations, but the highest percentage was found in San Francisco, Yoro, (66.7%), one of the Tolupán indigenous communities in Locomapa. (The Tolupán or Xicaque are one of the indigenous groups in Honduras that also include the Lencas, Pech, Maya Ch’orti, Miskito, and Garifuna). Figure 3 below shows more details about the self-identification of race and ethnicity of the respondents.

Figure 3: Racial and ethnic identification - all study populations.



4.2 Economic security.

Economic security refers to the activities (employment, occupation, and work), resources (education, land, access to communication, savings and capital) and goods (housing, basic services and others) that allow a person to earn a living with dignity. Questions on education level and basic services such as electricity and environmental sanitation were included in the survey. Income level was not asked because an evaluation of the home and other assets was preferred to obtain a more complete information on the socioeconomic stratum of the persons surveyed and their homes.

When answering question 4 about the existence of educational services or schools in the study communities, 93.7% of the respondents (193) indicated that there are primary and secondary schools in their communities. However, there are differences between the three study communities. While there are primary schools and secondary schools in Abisinia (93.2% of the responses), in Nueva Esperanza there is only one primary school (96.4% of the responses) and in San Francisco Locomapa there is a small primary school and a secondary school (93.3% of the responses).

The purpose of question 5 is to know the level of education of the father or mother or of the person who answered the survey if it is not the father or mother. The results indicate that most of the population has low levels of education: 15% of fathers and 17.5% of mothers did not go to school in the three study communities, and 25.7% of fathers and 40.8% of mothers who could go to primary school failed to finish their primary studies. Only 16.5% of fathers and 23.8% of mothers could finish primary school.

The percentages of those who entered and successfully completed high school are low. Only 3.9% of fathers and 8.2% of mothers entered a secondary school but not all were able to finish secondary school. Regarding higher education, only one person said that she studied at a university.

The following figures present the results on the highest level of fathers and mothers in the three study populations.

Figure 4: Father's level of education - all study populations.

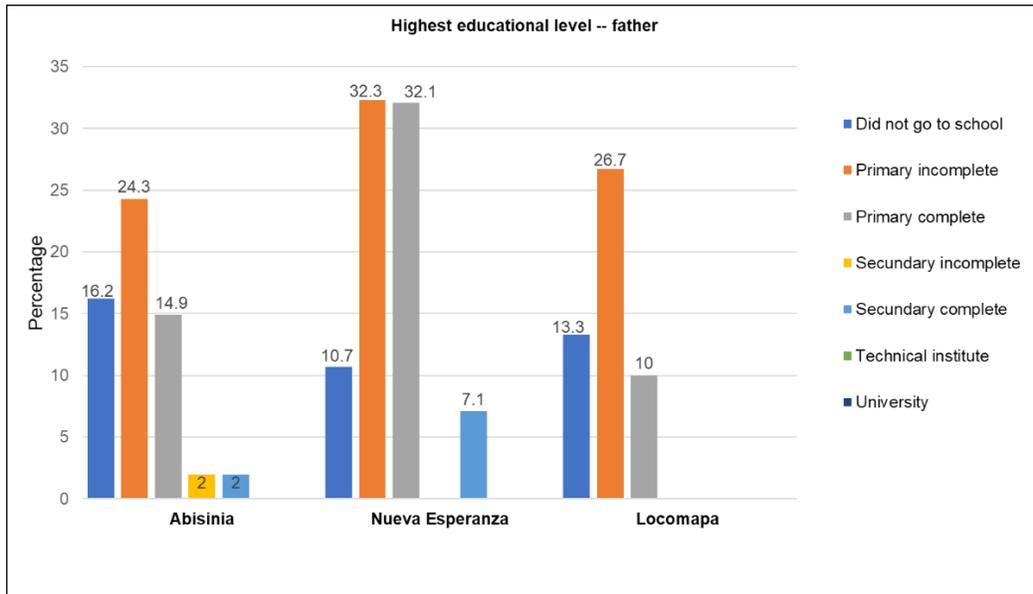
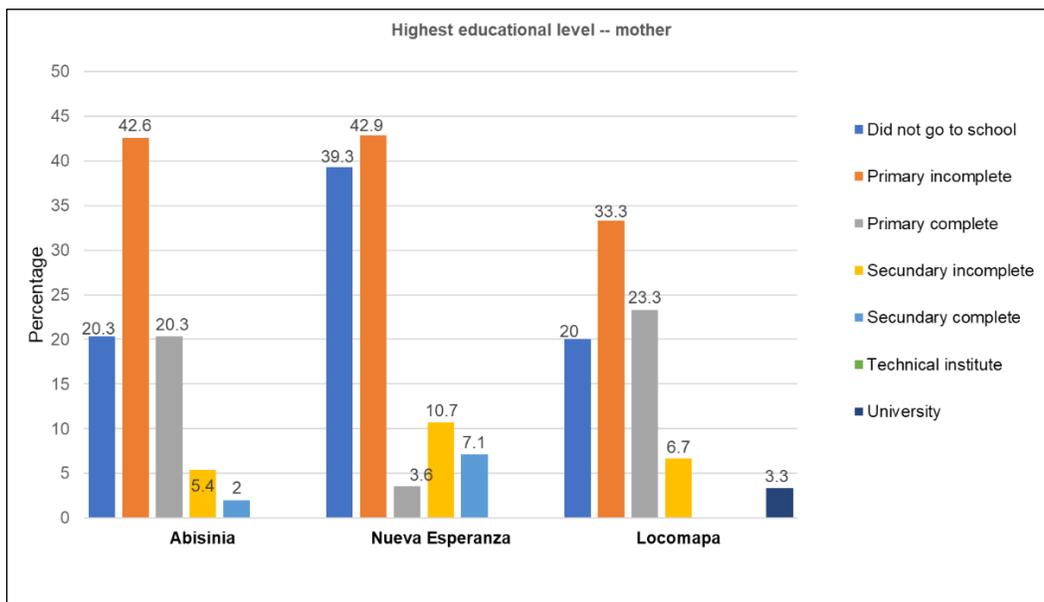


Figure 5: Mother's level of education - all study populations.



Figures 4 and 5 help to compare the levels of education of fathers and mothers in the three study communities. Parents were unable to go to school in Abisinia (16.2%), in Nueva Esperanza (10.7%) and in San Francisco (13.3%). In the case of mothers, they could not go to school in Abisinia (20.3%) and in San Francisco (20%). There were no reported cases of mothers who were unable to go to school in Nueva Esperanza.

Regarding primary education, Nueva Esperanza stands out as the percentages of those who were able to go to secondary school and complete secondary school studies are higher than the other communities: 32.1% of fathers and 42.9% of mothers managed to finish high school in Nueva Esperanza, compared to percentages of 14.9% or less for fathers and 23.3% or less for mothers in the other areas. In conclusion, survey results indicate that most of the respondents have a low level of education and that women have lower levels of education than men.

Question 6 sought to obtain information on the occupation of fathers and mothers in the home and how they earn a living. The results indicate that more than half of the parents in the three study communities work the land and raise livestock. The sum of percentages of those who work as farmers (51.9%), banana farmers (0.5%), and peasants (4.4%) is 56.8%. The rest of the parents work in livestock (2.9%), masonry and construction (2%), commerce (3.4%) and other occupations. Most mothers said that their main occupation is that of housewife (79.1%), laundry (1.9%) and housework (2.9%).

Question 2 sought to obtain information on home ownership. The majority of respondents in the three study communities (74.8%) said that they own the home where they live, or it is owned by a family member. The rest indicated that they pay rent for the house or have other agreements. It is important to note that houses and in some cases land for agricultural and livestock use appear as the main assets of the family. However, the research team found that most of the houses are of poor quality and with many deficiencies, as can be seen in the socioeconomic stratification table below.

Question 6 is about whether there is electrical service in the home. The majority of respondents (69.4%) said that they have electricity, but this percentage corresponds to Abisinia only. Nueva Esperanza and San Francisco do not have electricity.

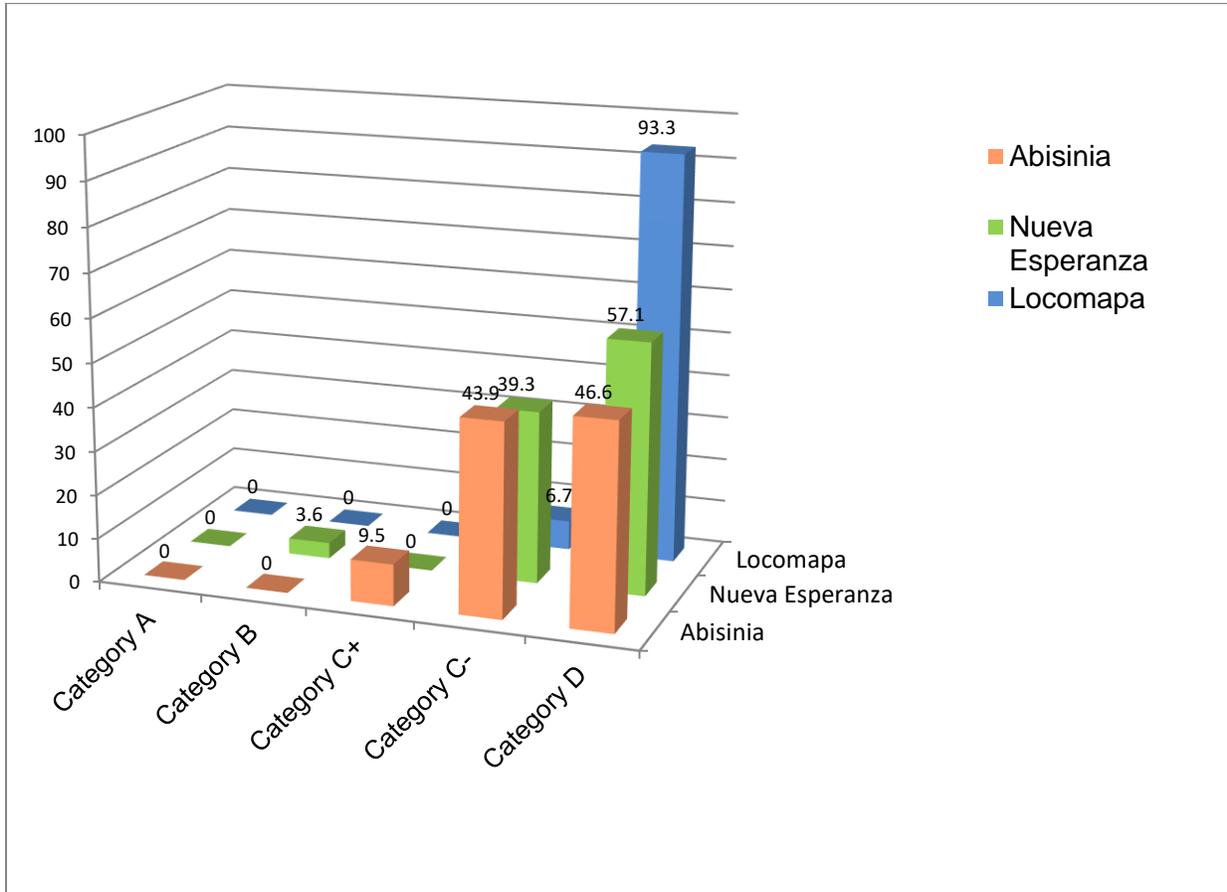
Question 8 on socioeconomic stratification of housing was not asked directly to the respondents. The information on this question was obtained by the interviewer by observing the type of construction (wood, cement, brick, adobe, mud walls), the type of water and sanitation services (inside or outside the house), and other services and goods such as vehicles, television, computers, refrigerator, kitchen oven, telephones, and furniture.

After observing the dwelling, the interviewer classified the dwelling as belonging to one of five categories: A, B, C +, C-, or D. Categories A and B correspond to upper- and middle-class households where the dwelling is built with durable materials (cement, brick, wood or tile floors), is larger and has several bathrooms and showers, and its residents have goods such as vehicles, refrigerators, gas stoves, televisions, sound equipment, and internet access. Category C corresponds to low-income households characterized by living in houses built with less durable materials, with a bathroom inside or outside the home, and with few goods such as televisions, refrigerators and sound equipment. Category D corresponds to the poorest households with precarious housing made of mud walls, dirt floors, and with few household goods.

This socioeconomic stratification methodology has been used in many countries as a reaction to the criticism of daily or monthly economic income as the only indicator of economic status. Socioeconomic stratification helps to obtain a more complete profile of the social and economic situation of the person and household. The national demographic and health survey 2011-2014 of the National Statistics Institute of Honduras used a similar method for social stratification of households.

Figure 6 below presents the results of the socioeconomic stratification of the dwellings in the three study communities. As shown in this figure, none of the 206 households visited in this project belong to stratification A. A single household (Nueva Esperanza) was classified in category B. A small percentage (6.8%) was classified as a category C + in the three study communities. Most households (92.8%) belong to category C- (37.9%) and category D (54.9%). These results indicate that most of the population of the three study communities live in conditions of poverty. In San Francisco Locomapa, the indigenous population lives in extreme poverty, as indicated by the high percentages of category D homes.

Figure 6: Socio-economic stratification - percentages of the three study populations.



The population of the three study communities live in conditions of poverty (Abisinia and Nueva Esperanza) and extreme poverty (San Francisco Campo Locomapa).

4.3 Food security.

Food security is an essential determinant of the health and quality of life of a population and is therefore a fundamental component of human security. From the perspective of the ecological model that links the individual with the community and the country, food security is defined as follows:⁴²

Food security "at the individual, household, nation and global level, is achieved when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to satisfy their nutritional needs and preferences for an active and healthy life". FAO, 1996.

This definition comes from the 1966 World Food Summit of the Food and Agriculture Organization of the United Nations (FAO), and has its roots in the 1948 Universal Declaration of Human Rights, which proclaimed that " Everyone has the right to an adequate standard of living that ensures him, as well as his family, health and well-being, and especially food...." Article 25.⁴³

On the contrary, food insecurity is observed when on some occasions during the year household members did not have or could not obtain enough food to meet the needs of all the household members because they did not have enough money or other resources to get food.

These definitions of food security and insecurity are used in the United States and throughout the world to measure food security in people and populations. Questions 9 and 10 of the survey were designed similarly to the validated questions used in food security surveys in the United States. These questions sought to obtain information on some key indicators of food security in the three study communities. The results of these questions are presented in Tables 7 and 8.

Table 7: Food I bought was not sufficient and had no money to buy more.

	Frequency	Percentage	Valid percentage	Accumulated percentage
Many times	98	47.6	47.6	47.6
Just a few times	64	31.1	31.1	78.6
Never	43	20.9	20.9	99.5
N/A	1	0.5	0.5	100
Total	206	100	100	

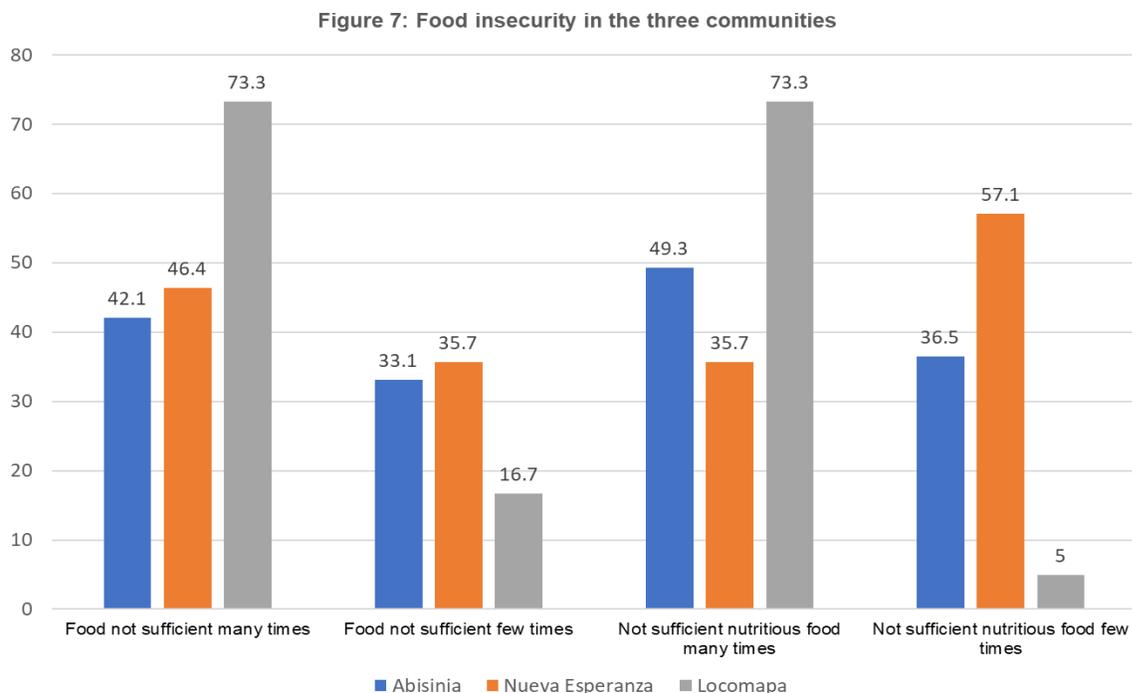
Table 8: Could not get sufficient nutritious food.

	Frequency	Percentage	Valid percentage	Accumulated percentage
Many times	105	51.0	51.0	51.0
Just a few times	77	37.4	37.4	88.3
Never	23	11.2	11.2	99.5
N/A	1	0.5	0.5	100
Total	206	100	100	

The results in Table 7 indicate that a total of 162 (78.7%) of 206 respondents said that in the last 12 months the food they bought was not sufficient many times (47.6%) or only sometimes (31.1%) and they did not have money to buy more. In addition, regarding the quality of the food, a total of 182 (88.4%) of the 206 respondents said that they could not eat balanced and nutritious foods that include meat proteins and dairy products many times (51%) or only sometimes (37.4%) (Table 8).

Food that was not enough to meet the needs of all household members and a lack of money to buy more food and to buy nutritious food are indicators of food insecurity. Figure 7 below compares these deficiencies between the three study populations. Food insecurity is much more serious in San Francisco Locomapa among the Tolupán indigenous population.

Figure 7: Food insecurity in the three study communities - percentages.



If food security means that all people, at all times, have access to sufficient, nutritious and safe food to maintain an active and healthy life, then these results are evidence of the serious situation of food insecurity afflicting most of the population in the three target areas.

Most households in Abisinia, Nueva Esperanza and San Francisco Locomapa suffer from food insecurity.

4.4 Water security.

There are several definitions of water security; however, all of them converge on the importance of access to water for health, food, economic development and the quality of the environment. Organizations related to the United Nations define water security as follows:⁴⁴

Water security is “The capacity of a population to safeguard sustainable access to adequate quantities of and acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability.”

The inclusion of a water security assessment in the project "Mining, Development and Justice of Honduras: A community-based initiative for education and advocacy" was based on three reasons: (a) the importance of water for human health, food security, agricultural production, and the quality of life of the communities; (b) the risk of degradation of water resources by mining (problems of access to water, destruction of water producing areas, deterioration of the water quality); and (c) the concern of communities to obtain and keep safe water for home consumption.

Furthermore, it is important to emphasize the strategic importance of water as a vital resource for education, organization and advocacy activities regarding the extractive model. Mining exploration and exploitation in Honduras are disturbing the uses and control of water as well as land, and have already caused conflicts. The first report of this project entitled “Socio-environmental impact of mining in the northwestern region of Honduras in light of three case studies: Montaña de Botaderos (Aguán), Nueva Esperanza (Atlántida) and Locomapa (Yoro)” describes the social conflict and the violence caused by extractive activities and the alteration of the quantity and quality of water for human consumption in the three study communities. Therefore, water security is and will be a critical factor in the discussion of the risks of the extractive model for communities and the environment, and in the search for alternative solutions that promote water security.

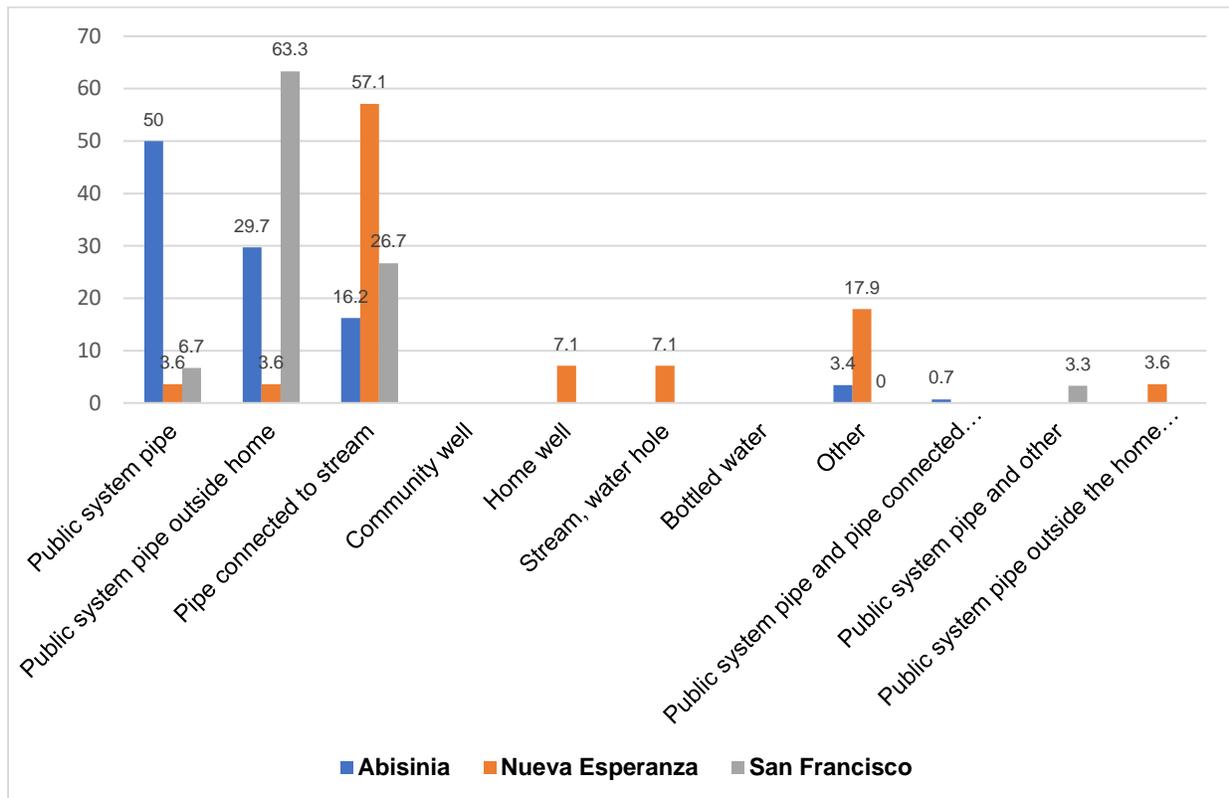
In the second section of the survey titled “Water,” 8 questions are asked about access to water and its use, and concerns and perceptions about water safety. The results of these questions are described below.

Question 11 sought to obtain information on the origin of household water. The results on the origin of the water in the three study communities indicates that 140 or 68% of the surveyed households have water that arrives in pipes from the public system to households. This pipe and water tap were found inside the home in 77 homes (37.4%), mostly in Abisinia, generally in the kitchen. Water that comes through a pipe connected to a system was also found outside the home (30.6%), generally in a “pila,” a cement or brick structure for washing clothes and other items in Abisinia (29.7%), Nueva Esperanza (3.6%) and San Francisco (63.3%).

A total of 23.3% of households (48) do not have water connected to a public system but a plastic pipe that brings water from a spring, water hole, or stream nearby. Respondents reported this situation in Abisinia (16.2%), Nueva Esperanza (57.1%) and San Francisco Locomapa (26.7%).

The results of the various methods of obtaining water in the three study communities can be seen in figure 8 below.

Figure 8: Source of household water — percentages of all study populations.

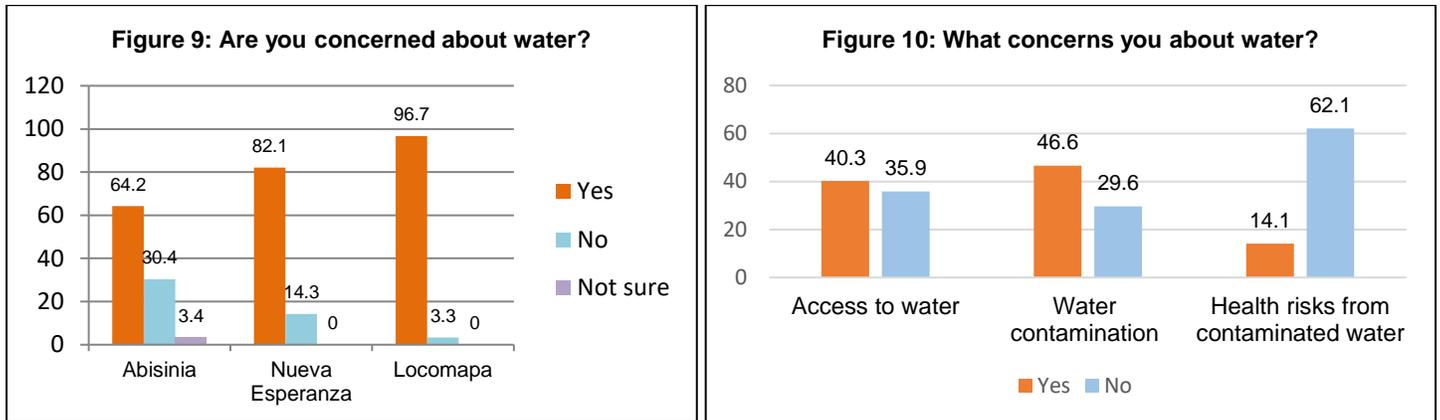


Abisinia near Tocoa has a public system that is accessed by 79.7% of the population with pipes inside the house (50%) or adjacent to the house (29.7%). However, 16.2% do not have access to the public system; these homes bring the water in tubes directly connected to a spring or water hole. The case of Nueva Esperanza near Tela is different because it does not have a public water system. In this community, 57.1% bring water through plastic tubes connected to a spring or water hole. The rest get the water from wells or directly from nearby streams. In San Francisco campo in the municipality of Yoro there is a public water system that collects but does not treat water. Approximately, 63.3% of the houses are connected to this system with pipes that go to places adjacent to the house, generally near the kitchen. The rest of homes get water through pipes connected to springs or water streams.

Access to water is a need that is not fully satisfied as indicated by the percentages of households that depend on precarious methods such as pipes connected to springs that frequently damaged by cattle or landslides. This situation is even more difficult for seven respondents who stated that they do not have water service and therefore must walk to a water hole or stream. Of these respondents, six have to walk less than 30 minutes round trip, and one respondent said they have to walk more than 30 minutes round trip. (Results of question 12: If there is no pipe inside the house, how long does it take to walk to get water to drink?).

Question 13 sought to inquire about the concerns of the residents about water. If the respondent indicated that they are concerned about water, then the interviewer asked whether the concern is about access to water, pollution, human health, livestock, agriculture and land. As shown in figure 9 below, most respondents (71.4%, average of the three communities) said that they are concerned about water. There is relatively less concern in Abisinia, Tocoa (64.2%) but much more concern in Nueva Esperanza, Tela (82.1%) and San Francisco Locomapa, Yoro (96.7%).

Figure 9: Concern about water, and figure 10: What concerns you about water, show percentages of all communities.



Regarding specific problems that concern water, the possible impact on livestock (0.5%), agriculture (1.5%) and land (2.9%) appeared as reasons of very little concern, as indicated by the percentages in parentheses. However, figure 10 below shows that there is more concern about access to water (83 households or 40.3%), and about water contamination (96 households or 46.6%) in the three study communities.

Regarding the concern about contaminated water in human health, respondents from 29 households or 14.1% of the total of the three study communities answered that they are concerned that contaminated water could affect health, while respondents from 128 households or 62.1% of the total answered that they are not concerned. This low level of concern about the impact of water contamination on health may reflect the fact that there is little knowledge of the risks of the presence of biological (bacteria, parasites) and non-biological contaminants (chemicals and toxic metals) in water that may affect health. According to field observations and the information provided by local residents, people are always looking for clear, good-tasting water. However, water that appears clear and safe may contain pollutants such as coliform bacteria that are not visible to the human eye. Coliforms are water quality indicator bacteria as some types of coliforms can cause infections in the digestive system. The results of household water testing described in section 4.6 demonstrated the presence of total coliforms in 94.1% of all households.

Question 14 sought to expand the information on environmental factors that can affect water in springs and streams where water comes from, and forests that produce water. The survey responses indicate that the majority of respondents believe that springs and streams are running out of water (164 respondents or 79.6%) and that water-producing forests have disappeared (141 respondents or 68.4%) in the three communities.

In addition to environmental factors, respondents were asked about certain practices that can affect the use and care of water. Regarding control of water use, 110 respondents or 53.4% believe that there is no control over water use, and 106 respondents or 51.5% believe that water is not cared for.

Figure 11 presents the percentages of respondents who believe that the streams are running out of water, that there is no longer a forest that produces water, that there is no control over the use of water, and that water is not cared for. Although the percentages on environmental factors of concern such as streams and forests are high in the three study communities, they are higher in Nueva Esperanza and San Francisco Locomapa, possibly due to the greater impact of deforestation and the expansion of the agricultural and livestock frontier into forests in those communities.

The opinion percentages concerning people's practices with a potential impact on water are lower than those related to environmental factors. Regarding control over water use, percentages close to 50% believe that there is no control over water use, especially when lack of control is related to water waste. Regarding water care, more than half of the respondents from Abisinia (52.7%) and Nueva Esperanza (64.3%) believe that water is not taken care of, while only 33.3% believe the same in San Francisco Locomapa.

Figure 11: Opinions on environmental factors and practices that affect water - total percentages of the three communities.

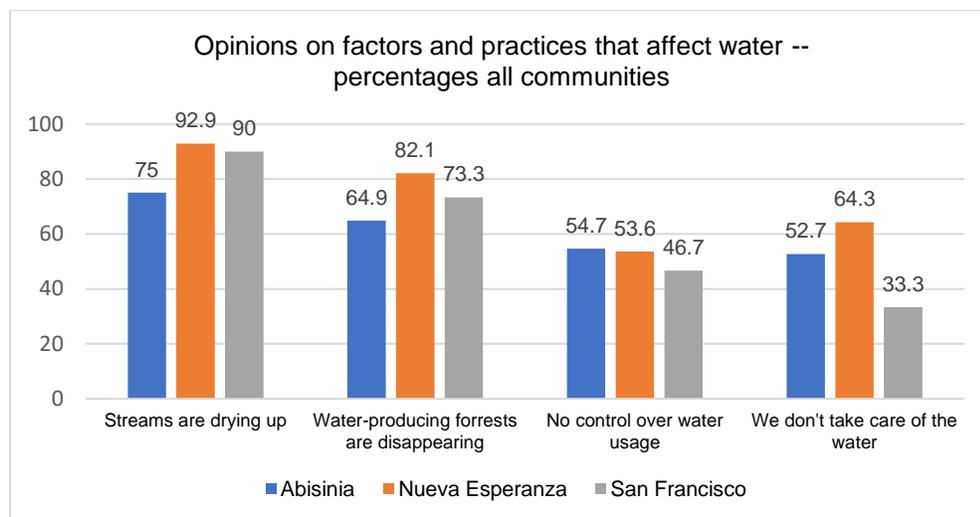


Table 9 and Figure 12 below present the results of question 15: Do you have sufficient water for your household needs?

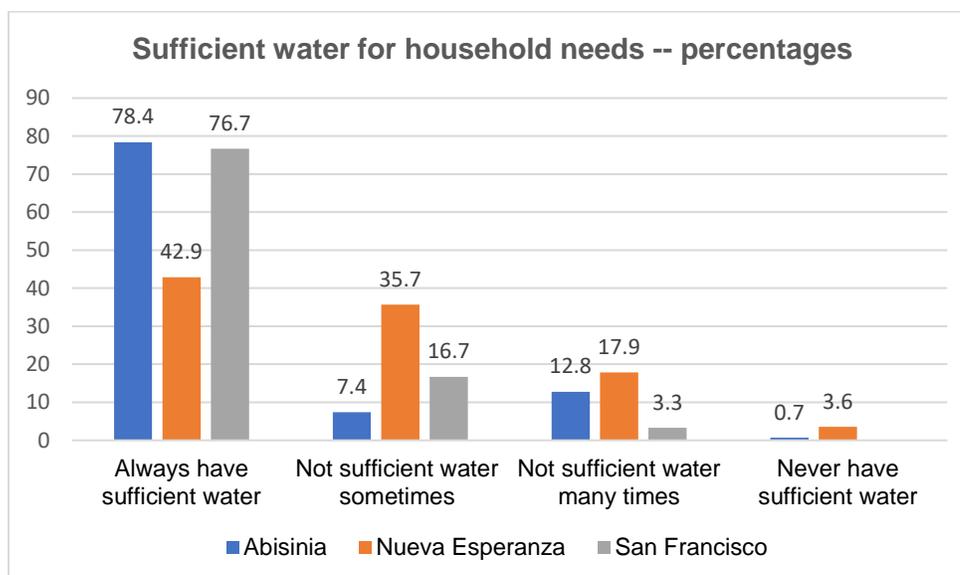
Table 9: Sufficient water for household needs - all study populations.

	Frequency	Percentage	Valid percentage	Accumulated percentage
I always have sufficient water	151	73.3	73.3	73.3
I don't have sufficient water sometimes	26	12.6	12.6	85.9
I don't have sufficient water many times	25	12.1	12.1	98.1
I never have sufficient water	2	1	1	99.0
N/A	2	1	1	100.0
TOTAL	206	100	100	

The entire population should have enough water at all times, according to the definition of water safety. Most of the respondents from Abisinia (78.4%) in the Aguán Valley and from San Francisco Locomapa (76.7%) stated that they always have enough water. This is not the case in Nueva Esperanza where only 42.9% said they always had enough water (Figure 12).

Homes where there is not enough water were found in the three communities. As can be seen in Table 9 above, 26 respondents (12.6%) said that they do not have enough water only a few times, while 25 respondents (12.1%) said that they do not have enough water many times (12.1%) in the three study populations. Two respondents said they never have enough water. The lack of water in sufficient quantities is of more concern in Nueva Esperanza in the parish of Arizona, as indicated by the percentages in figure 12 where 35.7% of the respondents said that there is not enough water only a few times, and 17.9% said that there is not enough water many times.

Figure 12: Sufficient water for household needs -- community comparison.



Water has multiple uses. Question 16 of the survey sought to obtain information on other uses of water in addition to the water needed for drinking and cooking. Most respondents (76.7%) in the three target populations said that they use the water to give the animals a drink, to water the garden and especially for washing clothes and cleaning the house.

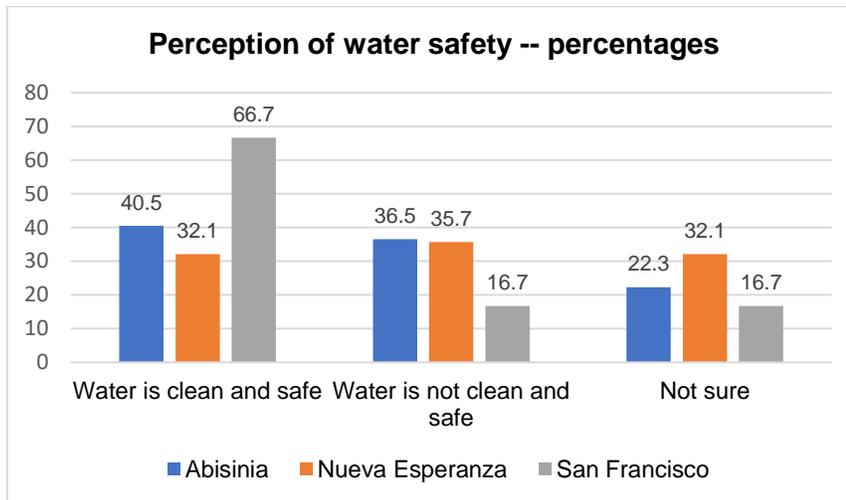
Question 17: Do you think the water you use for drinking and cooking is safe? sought to obtain information on the perception of the safety of household water. The results presented in Table 10 indicate that the surveyed population of the three study communities is not completely certain about the safety of the water they consume. Only 89 or 43.2% of respondents believe that their drinking and cooking water is clean and safe. On the contrary, 69 respondents or 33.5% do not believe that this water is clean and safe, while a sizable number (47 respondents or 22.8%) are not sure. Those who said they were not sure indicated that the water "seems" clear and safe but they are not completely sure if the water is safe to drink.

Table 10: Perception of safety of household drinking water -- Do you think the water you use for drinking and cooking is safe? All communities.

	Frequency	Percentage	Valid percentage	Accumulated percentage
Yes	89	43.2	43.2	43.2
No	69	33.5	33.5	76.7
Not sure	47	22.8	22.8	99.5
N/A	1	0.5	0.5	100
TOTAL	206	100	100	

Figure 13 below shows that the perceptions about water security are relatively similar in Abisinia and Nueva Esperanza, but are different when compared to San Francisco Locomapa where 66.7% of the respondents believe that the water is clean and safe, a much higher percentage than thoser of Abisinia and Nueva Esperanza.

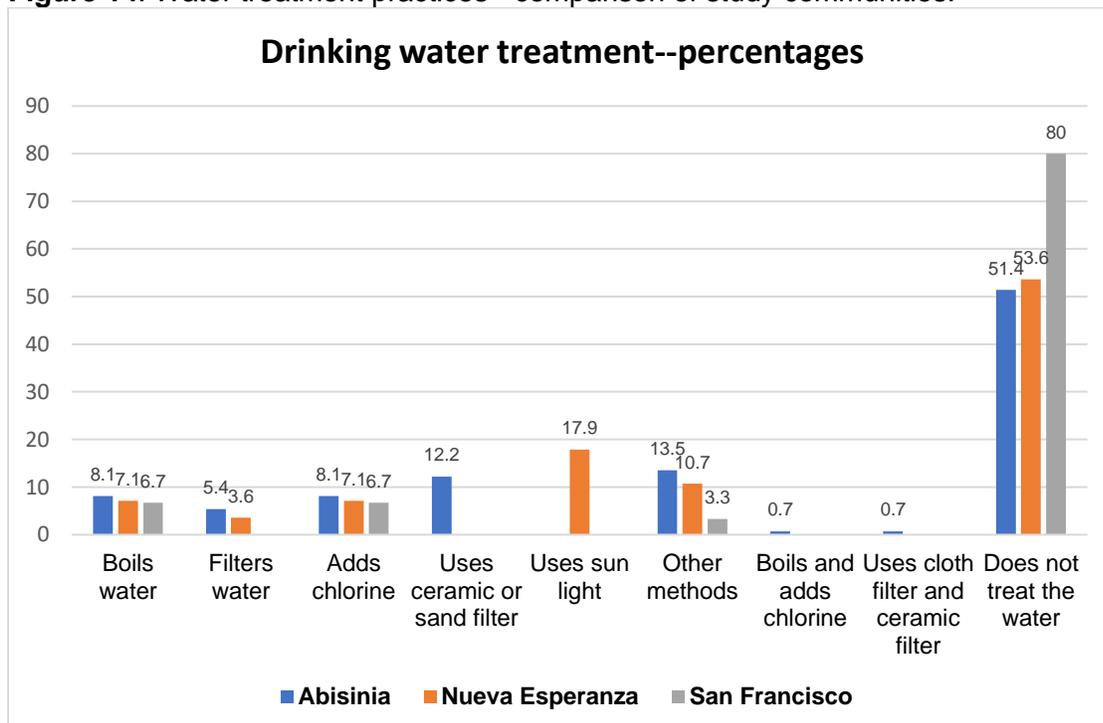
Figure 13: Perception of water safety - comparison of study communities.



The households of Abisinia, Nueva Esperanza, and San Francisco live in a situation of water insecurity because there is not always enough water, their access to water is precarious, and because water is not free of microbes that are harmful to health.

With question 18, the last in the section on water in the survey, information was sought on household water purification practices. The responses indicate that although people use some methods of water disinfection, most respondents (115 or 55.8%) in the three communities said that they do not treat their drinking water. This percentage is even higher in San Francisco Locomapa (80%) where, unlike the other communities, no other method of water purification is used. Figure 14 compares the responses of the three study communities on water treatment practices.

Figure 14: Water treatment practices - comparison of study communities.



4.5 Health and environmental security.

4.5.1 Sanitation and waste disposal services.

Due to the wide spectrum of risks to health and the environment at the personal, community, regional, national and global levels, there is no single definition of health security. At the individual level, health security is related to access to safe and effective health services, medicines, medical technologies and treatments.⁴⁵ At the national and global levels, WHO defines global health security as “the set of proactive and reactive activities necessary to reduce as much as possible the vulnerability to acute public health incidents capable of endangering the collective health of populations that are spreading across various geographic regions and across international borders.”⁴⁶

In the household survey it was important to include questions on human health and environmental risk to obtain a more complete profile of human security and environmental security in the study populations. In the third section of the survey titled “Environment and Health,” 13 questions are asked that include aspects of environmental sanitation, access to health insurance and health services, perception of environmental risks in the community, and opinions about mining.

Question 19 sought information on handwashing. Washing hands with soap and water before eating and after using the bathroom is one of the simplest and most effective prevention practices to protect people from infectious microbes (bacteria, viruses, parasites) and other contaminants that may be in the water. Most respondents (82%) said they always wash their hands with soap and water. However, these responses may be taken with some skepticism as they may have reflected the knowledge of the need for handwashing, but not necessarily the practice or habit of always doing so. In addition, in several dwellings the interviewer noticed that there was no sink or similar place to wash hands, or there was no soap.

The availability of toilets and waste treatment services are critical indicators of environmental health, particularly in regards to the risk of contracting infectious diseases associated with contaminated food and water. Question 20 collected information sanitation facilities available in the home. The results that can be seen in figure 15 indicate that most respondents (138 households or 67%) have a bathroom with a toilet connected to a septic tank, while approximately a quarter (56 households or 27.2 %) said they have a latrine near the house. Although most of the homes visited have a bathroom and a latrine, it seems that they need maintenance and disinfection, according interviewers’ observations. People from 6 households reported that they have a toilet connected to a public sewer, while 6 other households indicated that they do not have a toilet.

Figure 15: Sanitation facilities in the three study communities - total percentages.

Figure 16: Sanitation facilities in the home by community – percentages.

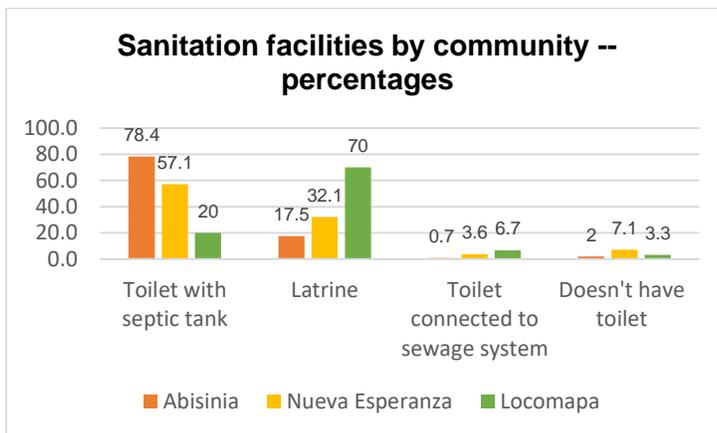
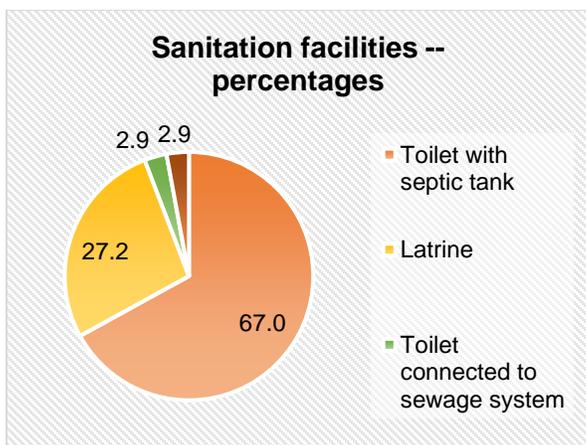
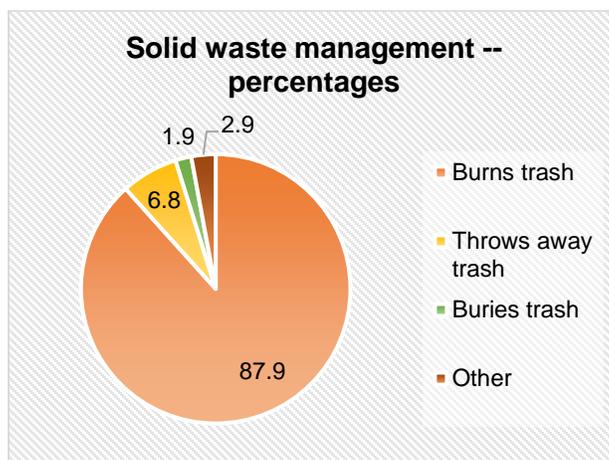


Figure 16 above shows that there are differences between study populations. In most households surveyed in Abisinia (78.4%) it was reported that they have toilets connected to a septic tank. In Nueva Esperanza, more than half of households (57.1%) have toilets connected to a septic tank, and approximately a third (32.1%) have latrines. In San Francisco Locomapa, most of the houses have a latrine and only 20% reported having a toilet with connection to a septic tank.

Garbage and solid waste management practices are also important indicators of environmental health. Figure 17 presents the results of question 21 on garbage management.

Figure 17: Solid waste management – percentages all communities.



The results of solid waste management make it clear that none of the study populations has a solid waste management system that serves the entire population. In the majority of households in the three study communities (87.9%), the garbage is burned on land adjacent to the house, or the garbage is burned and thrown into vacant lots, ditches or a water stream. Poor waste management increases the risk of contamination of water and the environment, and the risk of damage to health, especially by infectious diseases transmitted by mosquitoes such as dengue, zika, chikungunya and malaria.

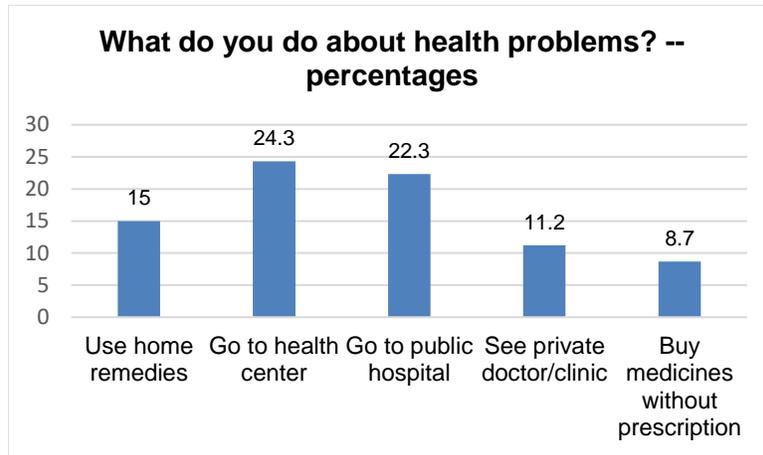
The homes of Abisinia, Nueva Esperanza and San Francisco Locomapa live with environmental insecurity and greater health risks due to the lack of adequate sanitation facilities and waste management services.

4.5.2 Access to healthcare services.

An essential aspect of human security is having health or medical insurance that allows access to health services. Question 22 obtained information on health insurance in the study populations. The results indicate that no one of the 73 fathers who answered this question said they have health insurance. In the case of mothers, only one said that she has state health insurance out of a total of 134 mothers who answered this question. Of the 20 respondents who were neither father nor mother, only one said had health insurance. These percentages show the almost total lack of health insurance in the three study communities.

If the people surveyed do not have health insurance, what do they do when they have health problems? Question 23 obtained information on the search for relief, treatment and cure. This information is summarized in Figure 18 below, which shows the total percentages of the three study communities.

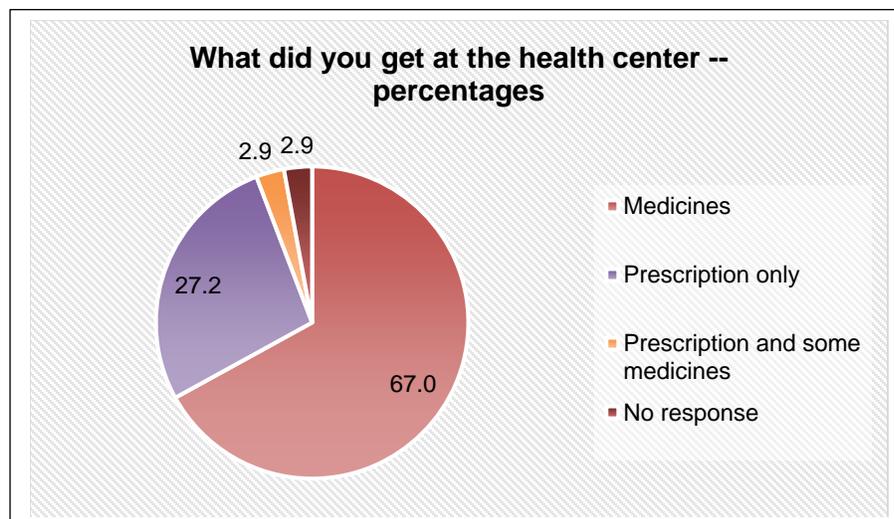
Figure 18: Response to health problems - percentages of the three study communities.



As shown in figure 18, the population is compelled to seek treatment in various ways, from the use of home remedies (15%) to the purchase of over-the-counter medicines (8.7%) and the visit to health services such as the closest health center (24.3%) or the public hospital (22.3%), and on some occasions, visits to private doctors and clinics (11.2%), or just buy medicines over the counter (8.7%). There are no health centers or hospitals in Nueva Esperanza and San Francisco; therefore, its residents must spend on transportation to go to the hospitals in Tela or Yoro. It is also important to note that since they do not have health insurance, the residents are forced to pay out of pocket for consultations, treatments and medicines.

Besides not having health insurance and having to pay for health services, an additional problem is not being able to obtain medicines in healthcare services such as clinics and health centers. Question 24 obtained information on this problem that is summarized in Figure 19.

Figure 19: What did they give you at the health center? - percentages of all study communities.



As shown in figure 19, the serious difficulties in obtaining medicines are evident in the responses of 64 respondents (31.1%) who said that they only received the prescription, while 92 respondents (44.7%) said that they received the prescription and some medications. The percentage of respondents who did receive medicines at the health center, clinic or hospital is only 15%.

Families live with the anguish of health insecurity in Abisinia, Nueva Esperanza, and San Francisco because they do not have health insurance or access to affordable and quality healthcare services.

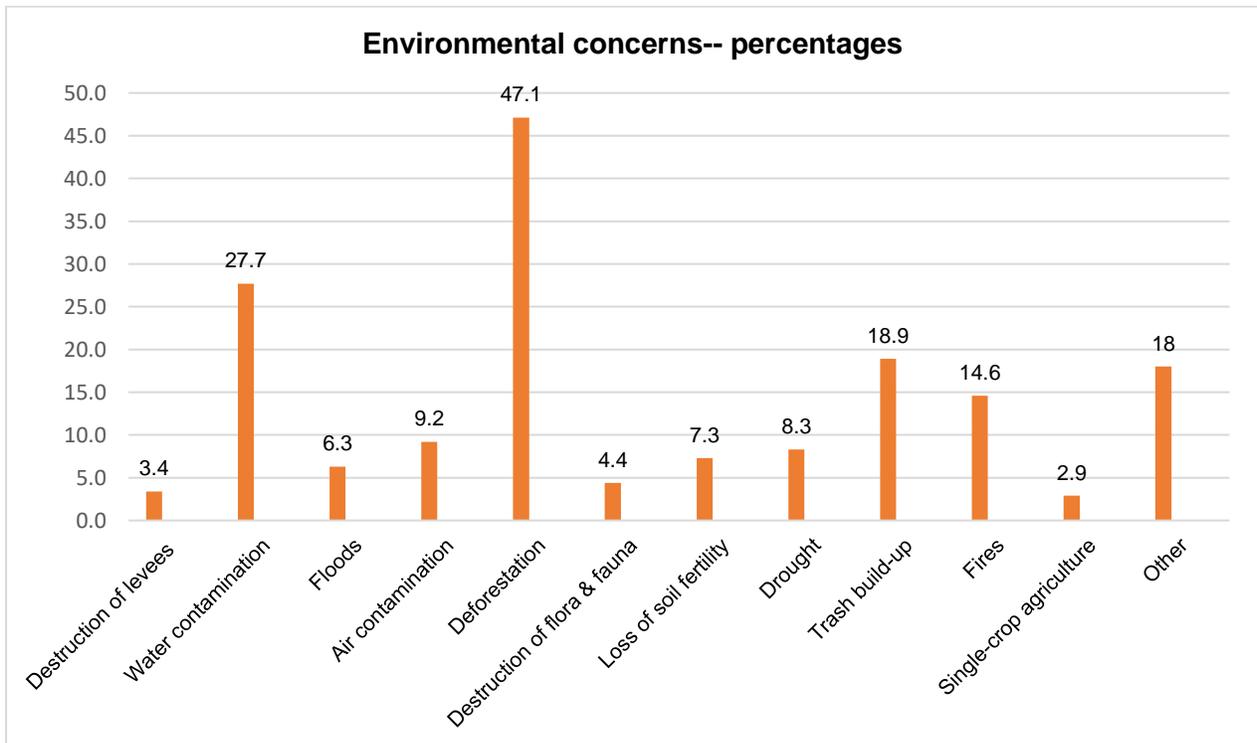
4.6 Opinions on environmental risks and mining.

The household survey also included questions about residents' opinions concerning environmental problems and mining. These questions were included because one of the main objectives of the project "Mining, Development and Justice of Honduras: A community-based initiative for education and advocacy" is to assess the impact of the extractive model on communities from the lived experience of the residents and their feelings toward environmental problems and mining activities.

4.6.1 Environmental risks and responsibilities.

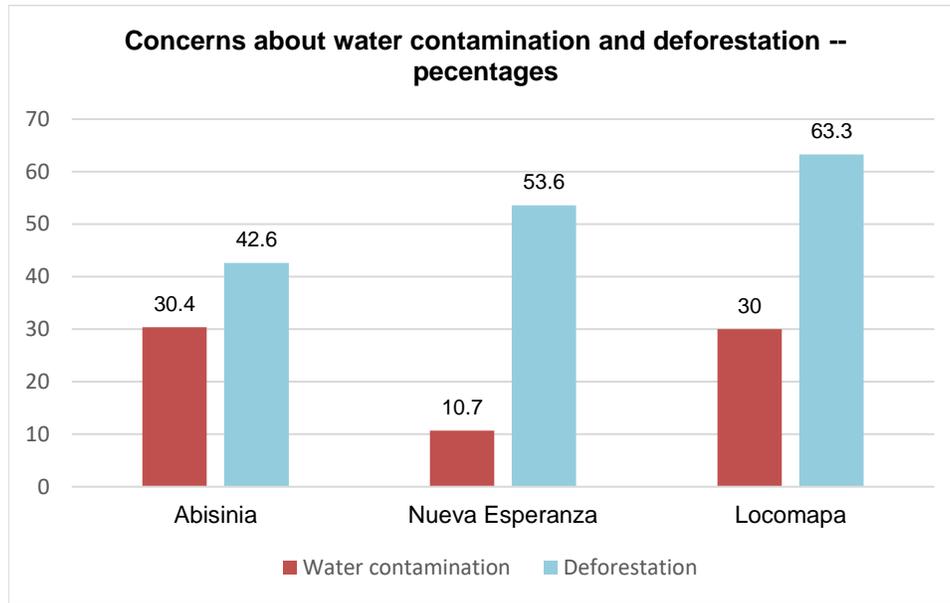
Question 25 sought to expand the information on environmental risk factors that concern residents. Figure 20 shows the results on the most important environmental problems indicated by respondents in the three study communities.

Figure 20: Environmental problems - percentages of all study communities.



Survey respondents said that various environmental problems exist in their community, albeit in relatively low percentages of less than 20%. Concerning water pollution, 139 (67.5%) respondents said that this is not a problem, while 57 respondents said that it is. Deforestation seems to be a concern of almost half of respondents. A total of 97 respondents (47.1%) stated that deforestation is an environmental problem in their community. Figure 21 shows the differences in perception about water pollution and deforestation between the three study areas.

Figure 21: Water pollution and deforestation – all communities.



Respondents from Abisinia (30.4%) and San Francisco Locomapa (30%) have a similar concern with water contamination, but not in Nueva Esperanza where only 10.7% believe that this is one of the main environmental problems. There is much more concern with deforestation in the three study communities, especially in San Francisco Locomapa where 63.3% of those surveyed stated that deforestation of pine forests is one of the main environmental problems. Approximately 90% of the Tolupan territory is forested and this has attracted national and foreign loggers who extract wood without control and cause violence and insecurity in the communities.⁴⁷

Question 25 sought to identify the opinion or perception of the respondents about organizations and actors that could be responsible for environmental problems. Organizations and key actors such as loggers and ranchers, mining and hydroelectric companies, farmers, foreign investors, and the government were listed as an answer option because in Honduras they have been linked to environmental problems. It was important to include the person surveyed as an individual possibly responsible for environmental problems in the community.

Figure 22 shows the percentages of the respondents who indicate who is responsible for these problems in the three study areas.

Figure 22: Responsibility for environmental problems - percentages of the study communities.

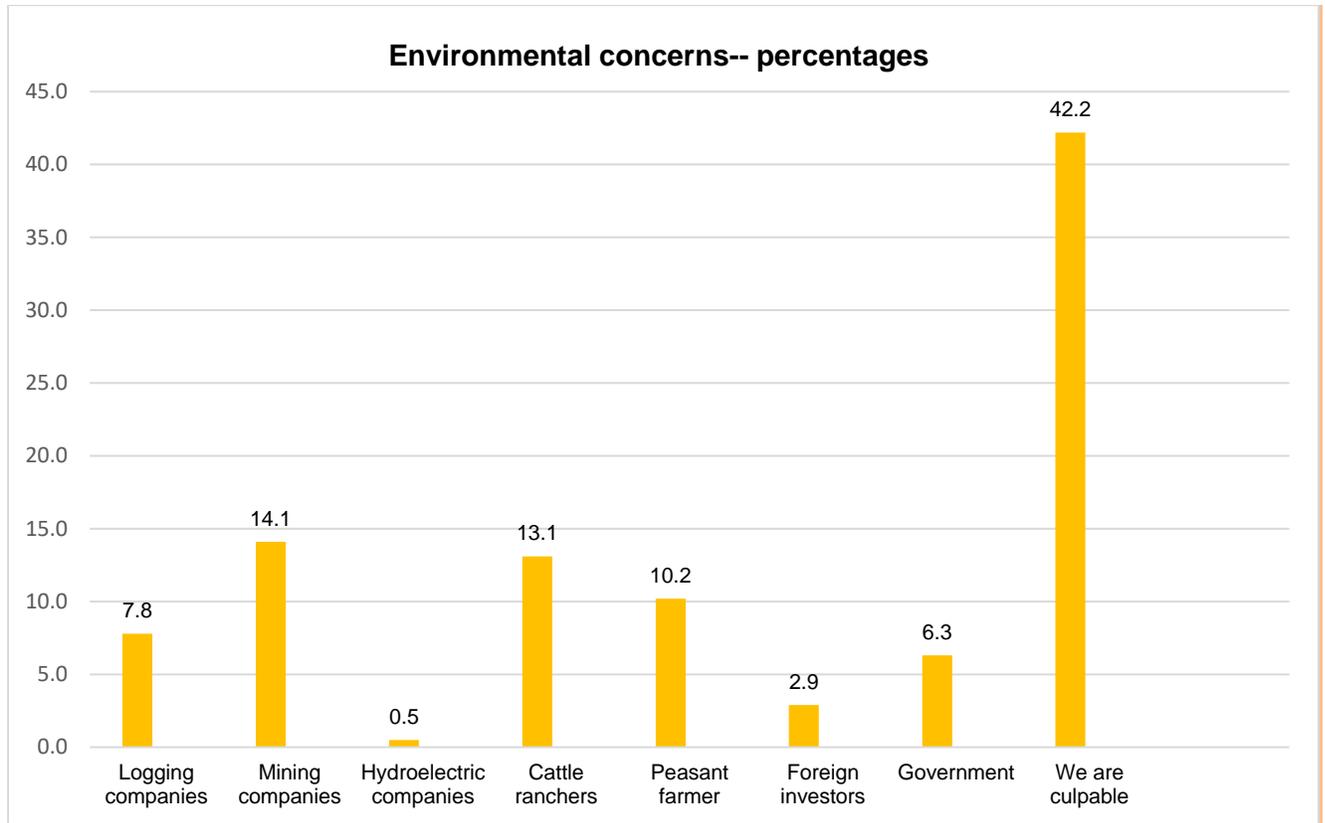
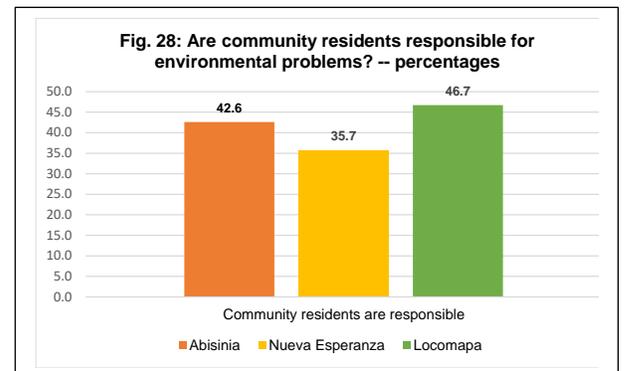
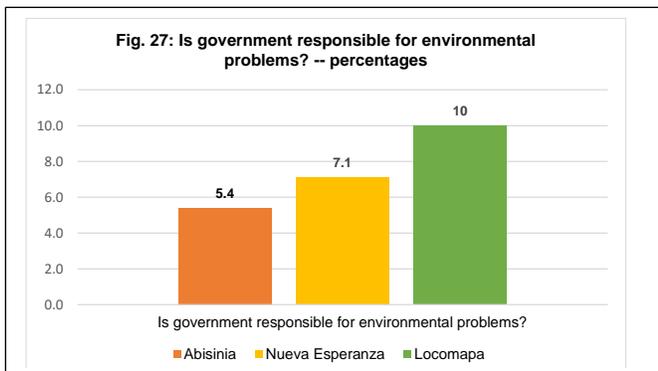
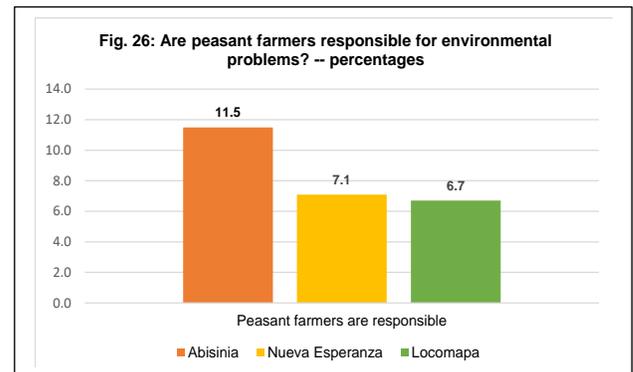
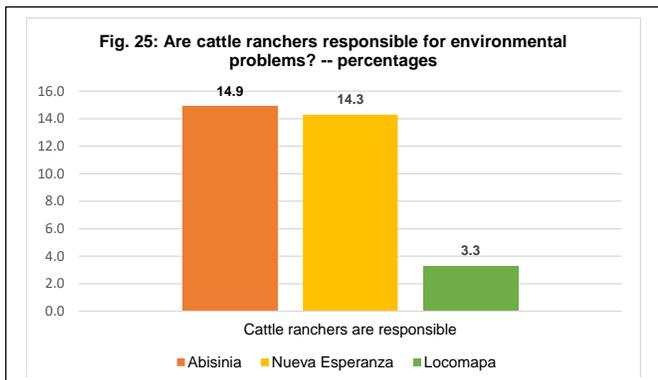
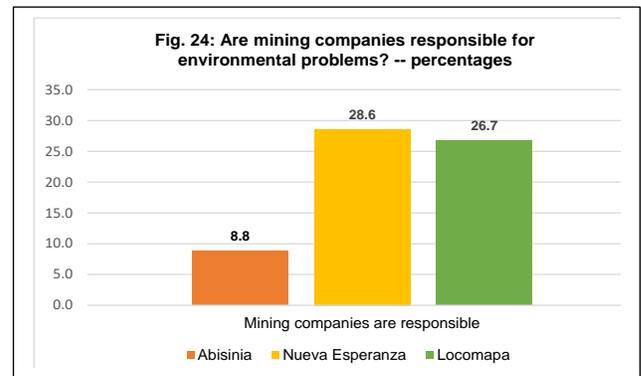
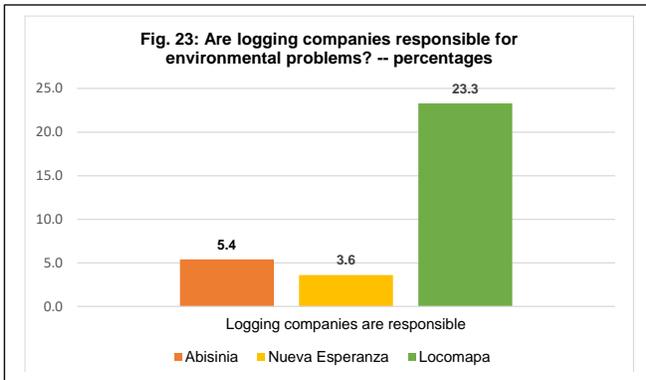


Figure 22 shows that the surveyed population gave all actors and organizations a certain degree of responsibility for environmental problems, although in relatively low percentages of less than 15%. Logging and mining companies, ranchers and peasants, and the government have higher levels of responsibility than hydroelectric companies and foreign investors. This might be the case because at the time surveys were administered there were no hydroelectric plants under construction or mining companies active in the communities. However, the percentage of respondents who say that the residents themselves are responsible for environmental problems (“we are the culprits”) stands out. This percentage is 42.2% (87 respondents) and is much higher than the rest of the percentages. This could be interpreted in two ways. The first interpretation of the apparent acceptance of self-responsibility could express the fact that the need for economic survival, and the lack of knowledge and alternatives push the inhabitants towards practices that result in environmental degradation. The second interpretation would point to the conformist and self-victimizing thinking that is the result of poverty itself and the historical practice of exclusion⁴⁸ that convinces community residents that they are responsible for the damages caused by third parties, including the State.

Comparisons between the three study communities reveal that there are differences in the opinion of those responsible for environmental problems with respect to logging and mining companies, ranchers and farmers, the government, and the residents themselves. For example, in San Francisco there is more concern about the loss of forests; in Abisinia and Nueva Esperanza the experience with the influx of mining companies weighs in the perception that these companies as responsible for the environmental problems. Unlike San Francisco Locomapa, where there is little cattle raising activity, in Abisinia and Nueva Esperanza cattle raising is more widespread and this may influence the opinion that farmers and ranchers are responsible for environmental problems such as loss of forests and the expansion of land for cattle. Regarding agriculture, respondents indicated that farmers themselves are responsible for environmental problems when the expansion of agriculture involves clearing forests in steep areas that leaves them exposed to erosion, or because this expansion destroys forests that produce water.

Figures 23, 24, 25, 26, 27 and 28.

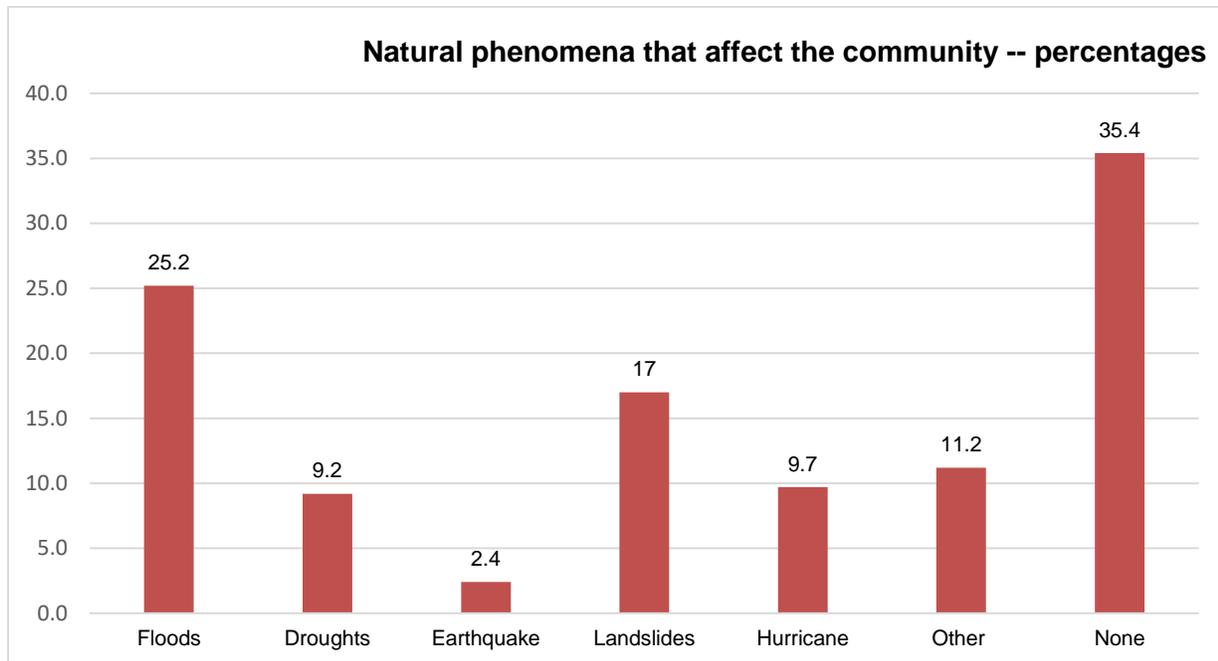


The relatively high percentages of responsibility of local community residents in comparison with other key actors and organizations is possibly the reflection of a reality of economic vulnerability where local residents see no other option than to cut more trees and clear vegetation in ecologically sensitive or unsuitable areas for agriculture and livestock. The low percentages attributed to governmental responsibility may be an expression of the irrelevance of the state as an authority that protects health and the environment in rural communities that are far away from the centers of decision-making power.

In the classification of environmental problems and disasters a distinction is made between anthropogenic problems or those caused by human activity, and non-anthropogenic problems or problems caused by natural forces such as floods, drought, earthquakes and hurricanes. Question 27, the last in the section on human health and environmental risk, asked for the opinion on non-anthropogenic natural phenomena. This question was included in the survey due to the high level of vulnerability of Honduras regarding extreme weather events and natural disasters.

Figure 29 presents the natural phenomena that were identified by the respondents in the three study areas. Over a third of respondents (35.4%) do not believe that natural phenomena such as those listed in this figure affect the community. In any event, floods (25%) and landslides (17%) that are usually caused by heavy rains appear as the natural phenomena of most concern.

Figure 29: Natural phenomena that affect the community — percentages of the study communities.



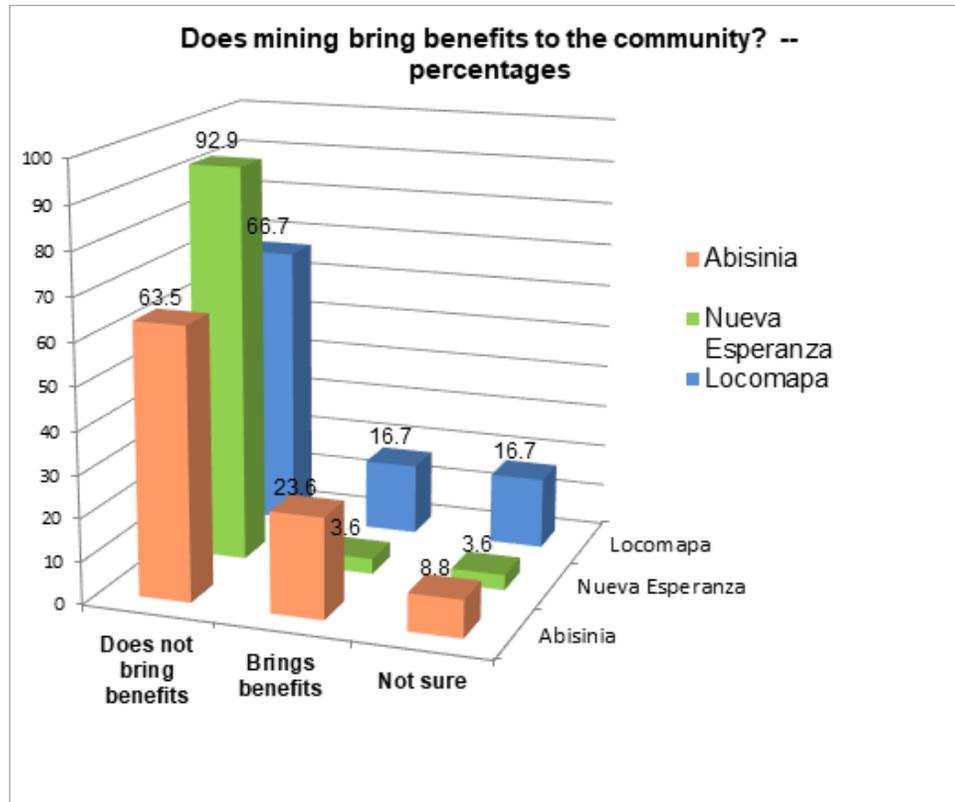
4.6.2 Opinions on mining.

The purpose of questions 28 to 31 in the final section of the household survey is to collect information on what people think about the benefits and risks of mining and the acceptance of mining projects in their communities. Question 28 sought to obtain information on the opinions about the benefits that mining could bring to the community. Table 11 summarizes the results of this question. This table shows that 68% of the respondents (140 out of a total of 206 respondents) in the three communities do not believe that mining can bring benefits to the community, while almost 20% (41 respondents) believe otherwise. Only 9.2% of respondents said they were unsure about the benefits of mining. Figure 30 shows the opinion percentages on whether mining brings benefits in the three study communities.

Table 11: Opinion on mining benefits - total percentages of the study communities.

Do you believe that mining can bring benefits to the community?				
	Frequency	Percentage	Valid percentage	Accumulated percentage
Yes, mining brings benefits	41	19.9	19.9	19.9
No, mining doesn't bring benefits	140	68.0	68.0	87.9
Not sure	19	9.2	9.2	97.1
N/A	6	2.9	2.9	100.0
TOTAL	206	100	100	

Figure 30: Opinion on mining benefits - percentage comparison of the three study communities.



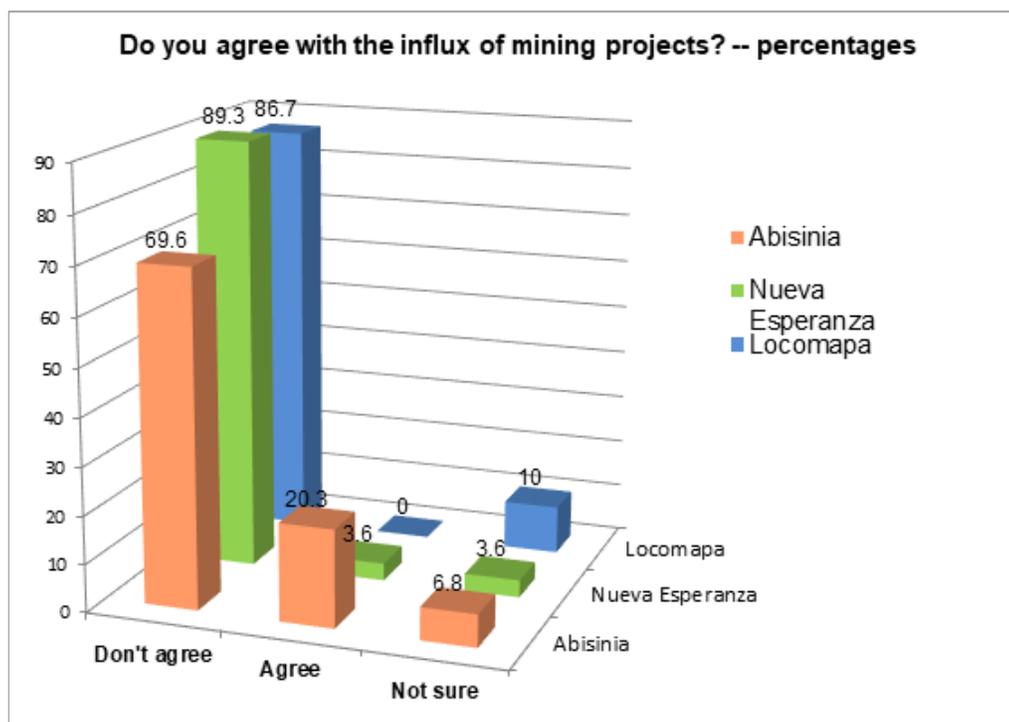
Although there is a clear majority of respondents who do not believe that mining can bring benefits to their communities, figure 30 indicates that respondents from Nueva Esperanza and San Francisco Locomapa are even more skeptical about the possible benefits that mining projects could bring. The high percentages of respondents who do not believe in the benefits of mining in Nueva Esperanza (92.9%) and in San Francisco Locomapa (66.7%) might be related to the conflicting experience that mining brought to their own communities, and to the organization, education, and advocacy activities in which they have participated on the effects of mining activities. In Abisinia people have not had such a direct experience of the environmental impact of mining, but they do know about the problems caused by mining at nearby sites such as the El Venado mine and the unfulfilled promises of mining businessmen.⁴⁹

With question 29, we wanted to know whether the respondents agreed with the development of mining projects in their communities. Table 12 presents the opinion results on this question and figure 31 shows the comparison of opinion percentages between the three study populations.

Table 12: Opinion on the development of mining projects - total percentages of all communities.

Do you agree with the influx of mining projects?				
	Frequency	Percentage	Valid percentage	Accumulated percentage
Yes, I agree	41	19.9	19.9	19.9
No, I don't agree	140	68.0	68.0	87.9
Not sure	19	9.2	9.2	97.1
No response	6	2.9	2.9	100.0
TOTAL	206	100	100	

Figure 31: Opinion on the influx of mining projects - comparison of percentages of study communities.



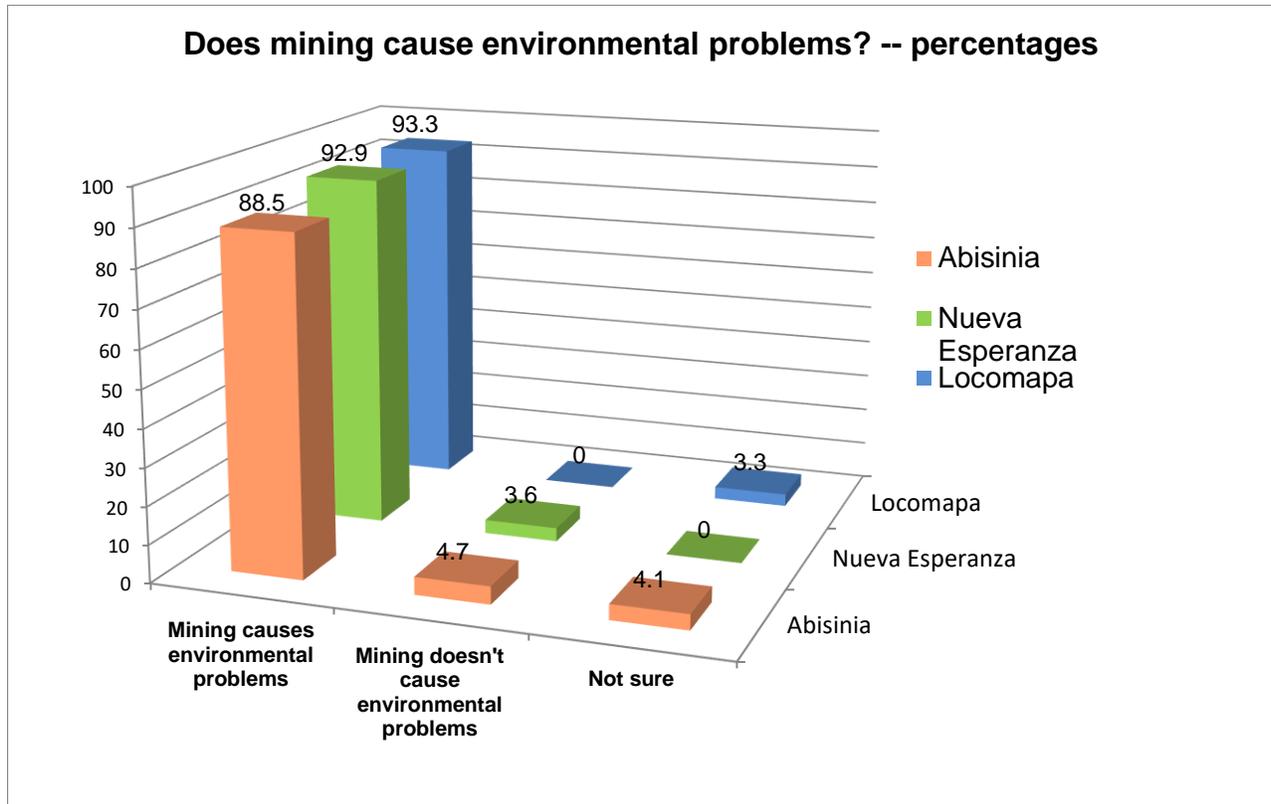
The results observed in table 12 and figure 30 above indicate that there is a clear majority of respondents (74.8% in table 38) who disagree with the development of mining projects in their communities. The percentages of disagreement with the influx of mining projects are even higher in Nueva Esperanza and in San Francisco. Regarding the development of mining projects, most respondents have made up their minds as the percentages of those who say they are not sure do not exceed 10%.

Question 30 sought to obtain information on mining as a cause of environmental problems. Table 13 and figure 32 summarize the responses of the respondents on mining as a cause of environmental problems in the communities.

Table 13: Opinion on mining and environmental problems - total percentages of the study communities.

Do you believe that mining projects cause environmental problems?				
	Frequency	Percentage	Valid percentage	Accumulated percentage
Yes, mining causes environmental problems	185	89.8	89.8	89.8
No, mining doesn't cause environmental problems	8	3.9	3.9	93.7
Not sure	7	3.4	3.4	97.1
No response	6	2.9	2.9	100.0
TOTAL	206	100	100	

Figure 32: Opinion on mining and environmental problems - percentage comparison of the three study communities.



The vast majority of respondents (89.8% in table 13) believe that mining causes environmental problems. The comparison of percentages of respondents who believe that mining causes harm to the environment is similar in the three study populations. Concerning the opinion of mining as a cause of environmental problems there is little doubt: the percentage of those who said they are unsure did not exceed 4.1%.

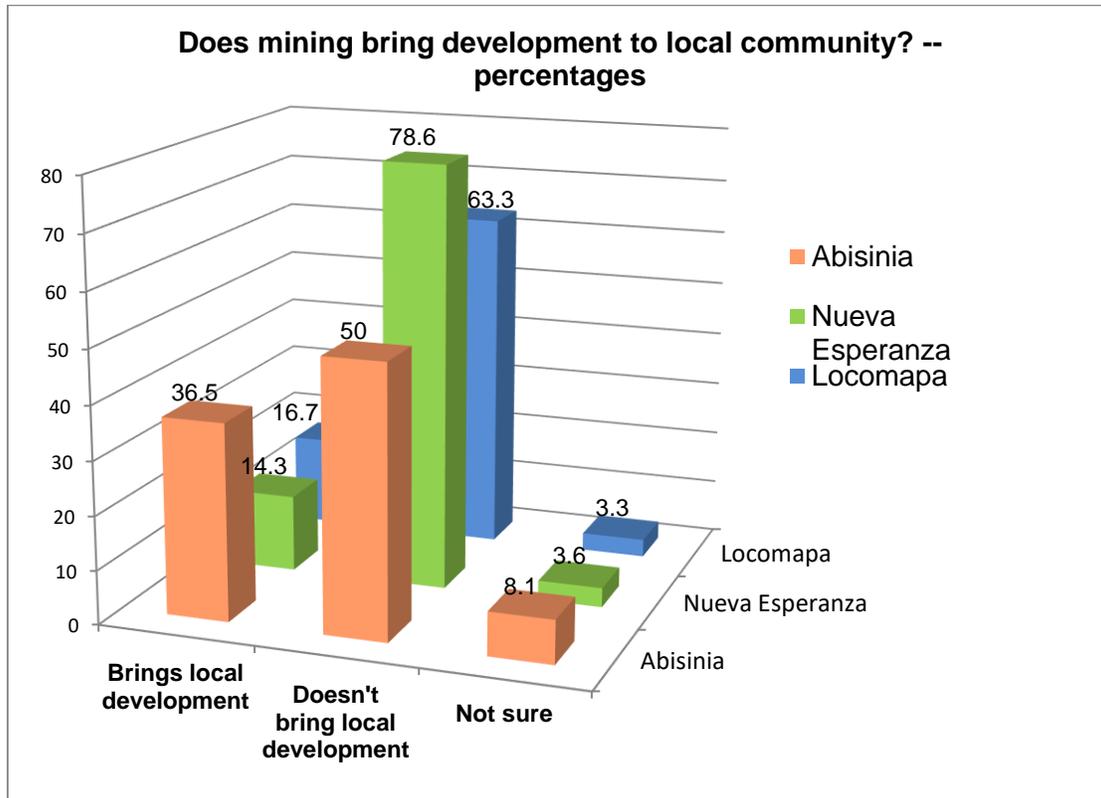
Question 32 is the last question in the survey. The purpose of this question is to determine what the residents think about the economic development that mining projects could bring to the community. This question was considered relevant due to the discourse of mining companies and government institutions that usually present mining as a catalyst of local development.

Table 14 and Figure 33 present the opinion results on mining projects as catalysts of local development for the community.

Table 14: Opinion on mining and local development - total percentages of all communities.

Do you believe that mining projects bring development to your community?				
	Frequency	Percentage	Valid percentage	Accumulated percentage
Yes, mining brings development	63	30.6	30.6	30.6
No, mining doesn't bring development	115	55.8	55.8	86.4
Not sure	14	6.8	6.8	93.2
No response	14	6.8	6.8	100.0
TOTAL	206	100	100	

Figure 33: Opinion on mining and local development - percentage comparison of the three study communities.



Although 55.8% of respondents said that they do not believe that mining projects bring about local development (Table 14) in the three communities, this majority is not as pronounced in La Abisinia (Aguán) (50%) where opinion is more divided. In Nueva Esperanza and San Francisco Locomapa there is a clear majority of respondents who do not believe in mining as a catalyst of development for the community (78.6% in Nueva Esperanza and 63.3% in San Francisco Locomapa). The margin of doubt is also low regarding the opinion on mining as a factor of local development: the percentage of those who said they are unsure did not exceed 8.1%.

It is likely that the responses on mining as a catalyst of local development reflect the ambivalence of the local population, especially in Abisinia regarding mining and local development. The results of this survey reveal the serious situation of poverty and lack of services and resources experienced in the study communities and the urgent needs for community development needed to improve access to basic services and more resources to leave poverty behind. In this context, a discourse supportive of local development of mining entrepreneurs and state agencies puts the inhabitants in a situation of ambivalence: local development is needed and the mining companies, responsible for environmental problems, offer this development. On the other hand, mining companies are known to cause environmental problems. What to think? What to do? What position to take? At least in Abisinia, Nueva Esperanza and San Francisco Locomapa, the residents have resolved the ambivalence and most of them have taken a position: they do not believe that mining can bring benefits to the community; they do not agree with the influx of mining projects; they believe that mining causes environmental problems; and they do not believe that mining can bring development for their communities.

The majority of the population in Abisinia, Nueva Esperanza and San Francisco Locomapa believe that mining causes environmental problems; they do not believe that mining can bring benefits to the community; they do not believe that mining can bring development to their communities; and they are not agreement with the influx of mining projects in their communities.

4.7 Evaluation of home drinking water quality.

One of the most serious and frequent threats to water security is contamination with infectious organisms (viruses, bacteria, parasites) that cause gastrointestinal illness. Coliforms are part of a group of bacteria commonly found in soil, water, and plants. Various types of coliforms are harmless, but there are coliforms that can cause disease.

Coliforms are generally used as indicators of water contamination because they include bacteria that live in the intestines of humans and animals and that can contaminate water through feces. The most common coliform test is the “total coliform” test that includes all coliforms including those of intestinal origin.

During home visits, after the survey was completed, permission was requested to obtain a sample of the water used for drinking and cooking. This sample was collected in special bags to which a stimulant for the growth of coliforms was added. This stimulant turns the water sample yellow. After a period of 48 hours the sample is examined. If the color has not changed and remains yellow, this indicates that the water does not have coliforms and therefore the result is negative. If the color has changed from yellow to brown or black, this indicates that the water does have coliforms and therefore the sample is positive. The standard of the United States Environmental Protection Agency (EPA) for coliforms in water is zero: the drinking water must not have coliforms.

A total of 136 household water samples were taken in the three study communities. Of this total, only 8 samples were negative (5.9%). The rest, 128 samples (94.1%) were positive. The following figures present the results of the coliform test and the differences between negative and positive samples. These results indicate that in most households drinking and cooking water is not safe because it may contain coliforms.

Figure 34: Coliform results - comparison of the three communities.

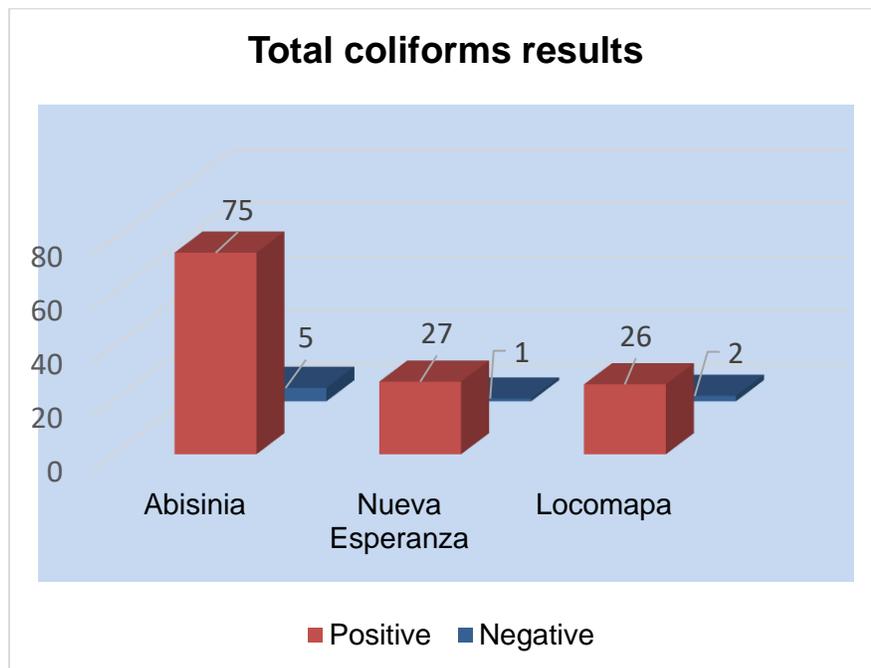


Figure 35 below shows the difference between positive (dark) and negative (yellow) coliform results, and figure 36 shows positive and negative results in water samples of home drinking water in Nueva Esperanza.

Figure 35: Difference between contaminated water and uncontaminated water with total coliforms.



Figure 36: Total coliform results positive and negative in Nueva Esperanza.



4.8 Evaluation of water quality in watersheds.

One of the main concerns of the population is the degradation of water sources and the contamination of water for human consumption caused by extractive activities. This prompted the research team to evaluate the water from springs, streams, and rivers used by local people as sources of water for drinking and cooking in the three communities.

This section describes the methods, parameters, and results that were used in evaluating nine water monitoring sites. These include three springs or sources of water for human consumption (Sinaí, Locomapa River and Los Jutes in Locomapa) and six rivers and streams in the three study communities as shown in table 15.

Table 15: Sampling sites for water sources, rivers, and streams.

Target area	AGUÁN			ARIZONA		LOCOMAPA			
Sampling site	(1) Tocoa river (upstream)	(2) Tocoa river (downstream)	(3) Paujiles 2, Sabá	(4) La Salada (stream)	(5) La Seca stream	(6) Sinaí water source	(7) Locomapa river water source	(8) Los Jutes water source	(9) Los Jutes stream

Evaluation of physical and chemical parameters.

A water assessment generally includes the measurement of physical and chemical parameters used to determine water quality. The parameters used in this study include the pH or potential of hydrogen, alkalinity, hardness, chlorine, nitrates and nitrites, ammonia, and iron.

Evaluation of aquatic macroinvertebrates.

Aquatic macroinvertebrates are invertebrates that can be seen without a microscope. Aquatic macroinvertebrates include annelids, mollusks, flatworms, nematodes, and arthropods, especially insects. Most of these species live on stone surfaces near water, in rocky cavities in water, on tree branches and submerged vegetation, and at the bottom of streams. Aquatic macroinvertebrates are considered important biological indicators of the quality of basins, water sources, and streams, as they are highly sensitive to changes in the environment.

Due to their sensitivity to physical-chemical changes in water, various biological monitoring or biomonitoring techniques have been designed to assess the quality of water through the presence of certain macroinvertebrates at a certain site. These techniques have been used to characterize the existence and severity of the deterioration of water bodies; to identify causes or factors of the affectation; to evaluate the effectiveness of control and remediation activities, and to support studies and programs regarding the sustainability of resource use and management and environmental quality.⁵⁰

Biomonitoring techniques have been used for more than 100 years in many parts of the world⁵¹ for various reasons including the sensitivity of macroinvertebrates to different types of contamination, and the low cost and ease of use of these techniques.⁵² New regulations for the protection of health and the environment that began to be enacted in the 1970s in the United States and in other countries gave a great boost to aquatic biomonitoring techniques. These began to be used as part of environmental impact assessments in mining, agricultural, and industrial projects required for regulatory purposes in many countries.

The rapid biomonitoring protocol has been particularly useful for communities concerned with water quality because of its ease of execution by community members. There are several examples of aquatic monitoring designed and executed by communities to determine baselines for water quality in basins, streams and springs, and to monitor water quality.

Results of the evaluation of springs, rivers and streams.

Table 16 below shows the results of the evaluation of physical-chemical parameters of 9 monitoring points. These include three springs or sources of water for human consumption (Sinaí, Locomapa river and Los Jutes in Locomapa) and six rivers and streams in the three communities. The sample collection and observation of macroinvertebrates to calculate the biotic index of water quality was done in 6 rivers and streams.



San Francisco Locomapa, wáter source Los Jutes, agosto 6, 2015.

Table 16: Results of physical-chemical parameters in rivers and streams of the study communities.

	ABISINIA, AGUÁN			NUEVA ESPERANZA, ARIZONA		SAN FRANCISCO LOCOMAPA			
	(1) Tocoa river (upstream)	(2) Tocoa river (downstream)	(3) Paujiles 2, Sabá	(4) La Salada (stream)	(5) La Seca stream	(6) Sinaí water source	(7) Locomapa river water source	(8) Los Jutes water source	(9) Los Jutes stream
pH			7.8	8.4	8.4	7.8	6.8	7.8	
Alcalinity (mg/L)			120	240	180	240		120	
Hardness (ppm or mg/L)			120	425	120	120	425	250	
Free chlorine (mg/L)			0	0	0	0	0	0	
Total chlorine (mg/L)			0	0	0	0	0	0	
Nitrites (mg/L)			0	0	0	0	0	0	
Nitrates (mg/L)			0	0	0	0	0	0	
Ammonia (mg/L)			0	0	0.25	0	0.25	0.25	
Iron (mg/L)			0.2	0	0.02	0.02	0.2	0.02	
Biotic index	3.4	3.1	3.0	3.4	3.3				3.2

The measurement of physical-chemical parameters in 9 monitoring sites (three sources of water for human consumption and six rivers and streams) in the three study communities indicates that the water, at the time of sampling, is of good quality. The following results can be highlighted:

- pH results indicate that all water sources have pH levels that are within the normal pH range for surface water that is 6.5 to 8.5.
- Regarding alkalinity, a single value was found within the ideal alkalinity range of 150 to 200 mg/L in the La Seca stream in Nueva Esperanza (180 mg / L). Moderately less alkaline values than the ideal range were found in the Paujiles streams (120 mg / L) in Sabá, near Abisinia and Los Jutes (120 mg/L) near San Francisco Locomapa. Values slightly more alkaline than the ideal range were found in the La Salada streams (240 mg/L) in Nueva Esperanza and the nascent Sinai (240 mg/L) near San Francisco Locomapa.
- The hardness values indicate that the monitored water streams have "moderately hard" water (between 120-180 ppm of calcium) as is the case of Paujiles (120 ppm), La Seca (120 ppm) and Sinai (120 ppm); or "very hard" water (180 ppm of calcium or more) as in La Salada (425 ppm), the source of the Locomapa river (425 ppm) and Los Jutes (250 ppm).
- Chlorine was not expected to be found in streams, rivers, and springs because the residents indicated that these waters are not given any disinfection treatment with chlorine when they are collected for human consumption. To verify this information, chlorine was measured in the water samples. No free or total chlorine was detected at any monitoring point, evidence that the water is its natural state and has not been treated with chlorine.

- No nitrates or nitrites were detected at any monitoring site. This indicates that there is no presence of organic pollutants from fertilizers or human and animal waste.
- The iron level detected at all points did not exceed the level of 0.3 mg/L recommended by the WHO.
- The biotic indices of all the monitored sites exceed the value of 3. Waters with biotic index of 3 or more are considered of excellent quality. The results of the aquatic biomonitoring indicate that the water at all monitored sites is of very good quality. These water streams, in the conditions existing at the time of monitoring in Abisinia, Nueva Esperanza and San Francisco Locomapa, support the life to a variety of macroinvertebrates that can only exist in uncontaminated waters.

In the absence of previous evaluations of water quality in the springs, rivers and streams of these communities, these results constitute the baseline of water quality that can be used as a reference to measure changes that may occur in the future due to contamination.

(5) DISCUSSION



(5) DISCUSSION

5.1. Evidence of vulnerability and insecurity in poor communities.

The results of our study on mining, environmental health, and human security show with greater clarity and depth the reality of vulnerability and insecurity of the people living in Abisinia in Bajo Aguán near Tocoa (Colón), in Nueva Esperanza near Tela (Atlántida) and in San Francisco Locomapa (Yoro). The human insecurity of 1069 people reflected in the 206 surveyed households is brought to light in the evidence found on economic, social, food, water, health, and environmental insecurity.

5.1.1 Social and economic insecurity.

Low educational levels.

Household surveys show that the community residents are mostly young and live in homes of relatively large families of Ladino and indigenous descent. These households have less access to education and live in conditions of poverty and extreme poverty.

There are schools in the three communities, but not all residents have had the opportunity to go to primary school and continue their education in high school. Approximately 15% of fathers and 17.5% of mothers did not go to school in the three study populations. These percentages are a reflection of the illiteracy rates in the country where 12.8% of Hondurans over 15 years of age cannot read or write.⁵³ The illiteracy rate increased almost 1% in the last three years, indicating that approximately 800,000 Hondurans do not know how to read or write. The illiteracy rate is highest in rural areas where it reaches 20.2%, according to the National Statistics Institute 2018.⁵⁴ In these communities, education is delayed or forgone to give priority to agricultural work to support the subsistence of the family.

The percentages of respondents who were able to finish primary and secondary schools are low. Only 16.5% of fathers and 23.8% of mothers were able to finish primary school. Nationally, 37% of men and 34% of women have not completed primary education.⁵⁵ Regarding high school, of the surveyed population, only 3.9% of fathers and 8.2% of mothers entered a secondary school, but not all were able to finish secondary school. These results indicate that most of the respondents in Abisinia, Nueva Esperanza and San Francisco Locomapa have a low level of education and that women have lower levels of education than men.

Most respondents in Abisinia, Nueva Esperanza and San Francisco Locomapa have low levels of education. Approximately 15% of fathers and 17.5% of mothers could not go to primary school. Women have lower levels of education than men.

Education is an essential resource for economic security and a fundamental component of human security. There is a worldwide awareness that education is critical for finding work, for family well-being, and for the economic and social development of a country. Honduras has lagged behind in achieving the goal of literacy for the entire population. Globally, out of 197 countries, 26 countries have a literacy rate of 100%, and 93 countries have rates between 90% and 99%. Honduras is in position 129 with an illiteracy index of 85%.⁵⁶

Poverty and extreme poverty.

In its summary of the Honduran household survey, **the National Institute of Statistics (INE) 2013 defines poverty is “a situational syndrome associated with under-consumption, malnutrition, precarious housing conditions, low educational levels, poor sanitary conditions, and an unstable insertion in the productive apparatus.”**⁵⁷ This is precisely the situation observed in the three study communities.

The results of household surveys and field observations indicate that the small-scale economies based on agriculture and livestock that support local families are precarious and without any protection regarding market fluctuations, droughts, and climate change. Most families live in overcrowded conditions (defined as the existence of more than three people per room) in poor homes with few assets and many deprivations. Small-scale agricultural economies have suffered the impact of policies such as CAFTA (the Free Trade Agreement between Central America plus the Dominican Republic and the United States) aimed at agro-exports controlled by large national and international conglomerates and the exploitation of minerals, and not to the promotion of agricultural economies that feed rural families in Honduras.⁵⁸

The evidence of poverty found in Abisinia, Nueva Esperanza, and San Francisco Locomapa is a reflection of the current situation in Honduras for a long time considered as one of the poorest countries in Latin America and the Caribbean. According to a 2017 report from the Economic Commission for Latin America and the Caribbean (ECLAC), Honduras is the poorest country in the Central American region with a 68.9% of the population living in poverty.⁵⁹

While income distribution indicators improved for most of Latin American countries in 2018, Honduras has experienced in recent years "a distributional deterioration."⁶⁰ Despite the increase in public spending in the 2010-2018 period, Honduras has not been able to reduce poverty rates. In 2010, 66% of the population lived in poverty; in 2018 this percentage was 67%.⁶¹ The INE data from 2018 indicate that people living in poverty represent 68% of the population, which is more than six million people. Of this total, 44%, that is, 3.9 million, live in extreme poverty. In Honduras "we are a country of extreme poor people."⁶²

"During 2019 there will be 110,000 new poor people in Honduras."⁶³ In January 2019 the United Nations (UN) confirmed that Honduras "fell three points in the extreme poverty index".⁶⁴ A national opinion poll conducted in February 2019 by Radio Progreso and ERIC revealed that 70.1% of respondents believe that poverty increased in the last year of President Juan Orlando Hernández (JOH) and that, after 10 years of the coup d'état, 78.7% of respondents believe that "we are currently poorer than we were 10 years ago."⁶⁵

5.1.2 Food insecurity.

Food security requires that all people, at all times, have physical and economic access to sufficient, safe and nutritious food to satisfy their nutritional needs. This is not the case in the three study communities, as indicated by the results of household surveys. The food insecurity found in Abisinia, Nueva Esperanza, and San Francisco Locomapa mirrors the food insecurity experienced in urban and rural communities throughout Honduras. In 2012 it was reported that 1.5 million Hondurans suffer from hunger and food insecurity and that chronic malnutrition reaches 48.5% in rural areas.⁶⁶

According to the 2011-2012 ENDESA national demographic and health survey, 23% of children under the age of five suffer from stunted growth. For 6% of children with chronic malnutrition, stunting is severe.⁶⁷ There is a huge inequality in chronic malnutrition related to mothers' education and income. Only 11% of children of mothers with secondary education have stunted growth, while this percentage reaches 48% in mothers without formal education.⁶⁸ In 2018 the FAO reported that Honduras with a rate of 22.6% is the third country with the highest rates of chronic child malnutrition in Latin America.⁶⁹ According to the 2018 household survey by the National Statistics Institute, 4 out of 10 Honduran households continue to experience a food crisis, which means that "3.8 million people do not have sufficient income to even buy food."⁷⁰

Indigenous peoples are especially vulnerable to food insecurity. Households surveyed in San Francisco Locomapa in the Tolupán indigenous community reported the highest percentages of food insecurity. At the national level, chronic malnutrition among indigenous peoples is 1.4 times higher than the national rate. Among the Lenca, Tolupán and Maya Chortí ethnic groups, more than 50% of children have low height-for-age associated with malnutrition.⁷¹ Chronic malnutrition in children reaches 80% in indigenous and poor communities, which places Honduras as the second country in Central America with the highest incidence of chronic malnutrition.⁷²

At the national level and in the Central American region, climate change constitutes a threat to food security. According to the Social Forum on External Debt and Development in Honduras (FOSDEH), there is a close relationship between the worsening of the hunger situation and climate change in Honduras. In Latin America and the Caribbean, 8 out of 10 people who produce food are small farmers who do not have the resources to adapt and protect the production of basic grains such as beans and corn.⁷³ The report of the Food and Agriculture Organization of the United Nations (FAO) on food security and nutrition in the world 2018 indicates that Honduras is particularly sensitive to climate shock, extreme changes in drought, rains, and hurricanes that further endanger food production and vulnerable populations.⁷⁴

5.1.3 Water insecurity.

In a world with water security “each person has enough water at an affordable price to live a healthy, clean, and productive life. It is a world protected from floods, droughts, landslides, erosion and water-borne diseases.”⁷⁵ This is not the world in which the people of Abisinia, Nueva Esperanza and San Francisco Locomapa live in, nor is it that of Honduras.

Water resources in Honduras are relatively abundant, as it is estimated that there is an availability of 13,776 m³ of water per capita.⁷⁶ However, its distribution is not equitable regarding geography (the north of the country has more water, but in the southern and eastern areas water is scarcer) and access (not all populations have access to water). Furthermore, water sources and their availability for human use are threatened by deforestation, climate change, and the expansion of mining. The report “Environmental impact of mining in the northwestern region of Honduras in light of three case studies: Montaña de Botaderos (Aguán), Nueva Esperanza (Atlántida) and Locomapa (Yoro),” the first published volume of the project “Mining, Development and Justice: A Community Initiative for Education and Advocacy”, indicates that there are 59 mining concessions in Colón where La Abisinia is located, 43 in Atlántida where Nueva Esperanza is located, and 65 in Yoro where San Francisco Locomapa is located. It is this expansion of the extraction frontier that causes deep concern in the communities, especially because of the deterioration and contamination of water related to mining and logging activities.

As evidenced by the results on water, households in Abisinia, Nueva Esperanza, and San Francisco experience a situation of water insecurity. Although there are still good quality water sources in these communities, there is not enough water all the time in the homes due to access problems. In addition, most of the drinking water is not disinfected and contains coliforms that can be harmful to health.

Water insecurity is not only a local but a national problem. According to the ENDESA national demographic and health survey 2011-2012, only 86% of households in Honduras have access to drinking water, including connections within the home (41%) and outside the home (45%), both from a public service (41%) or private (45%). Furthermore, there is a great disparity between the city and the countryside. In urban areas 96% households have access to drinking water compared to 75% in rural areas.

The most recent information indicates that providing sufficient and safe water to the entire population continues to be a problem that has not been completely resolved in Honduras. In April 2018, it was reported that 240 municipalities out of a total of 298 in the national territory face serious difficulties in meeting the population's demand for drinking water on a constant basis and with quality assurances.⁷⁷ In March 2019, it was reported that 70% of the population of Honduras, about 6.3 million people, has access to water, but not all of it is safe for consumption.⁷⁸ In September 2019, the severe drought and the subsequent lack of water for human consumption, loss of 50% of corn production, and the death of a thousand head of cattle forced President Juan Orlando Hernández to declare a state of emergency due to water scarcity.⁷⁹

The price of water insecurity now exacerbated by climate shock is paid by the poorest. Radio Progreso reported that in the Nueva Capital neighborhood in Tegucigalpa thousands of people do not know what it is to have tap water. For these residents, one barrel of water costs between 40 and 70 lempiras that has been used for drinking, cooking, bathing, and washing. “Water for the poor in the capital city became a private service years ago that they only get when they can afford it.”⁸⁰

5.1.4 Health and environmental insecurity.

The close connection between individual health security and collective health security has been understood since 1880.⁸¹ Likewise, there is currently more evidence and clarity on the connection between health and the environment. Globally, it is now understood that infectious and chronic diseases, mental illness, accidents, food and water contamination, lack of access to health services, and lack of health insurance are threats to the health security of the person, the community, and the country. The same is true for exposure to toxic metals and chemicals, environmental pollution, degradation of water, soil, forests and other natural resources, natural disasters and climate change that put environmental security at risk. Furthermore, in recent years, urgent attention has been paid to armed conflicts, violence, humanitarian emergencies and migrations of people forced to leave their homes as serious threats to health security.

The household survey revealed the situation of precariousness and neglect experienced by local communities regarding health and environmental quality. Lack of health services and proper waste management, lack of health insurance, and lack of access to quality, affordable, and nearby health services are evidence of health and environmental insecurity.

The situation of insecurity in health and environmental quality of the people in Abisinia, Nueva Esperanza, and San Francisco Campo is similar to that experienced by thousands of people in rural communities and urban neighborhoods throughout Honduras. Due to the importance of human health as a foundation for development and quality of life of a country, it is necessary to draw attention to the catastrophic situation of the health system in Honduras. The coverage index of essential health services in Honduras for 2015 was only 64% and in 2016 approximately 1.8 million Hondurans (18.0% of the population) did not have access to health services, mainly in rural areas of poor municipalities.⁸²

The evaluation of health systems in 195 countries in the period 1990-2015 examined 32 types of diseases that should not cause death if there were access to quality health services.⁸³ In this evaluation, Honduras was in the last place out of 17 Latin American countries with the lowest rate of change in 25 years,⁸⁴ evidence of the collapse of the Honduran health system. In regards to access to medical and health insurance, Honduras has also lagged behind: almost 9 out of 10 people are not covered by any type of health insurance.⁸⁵

This limited progress in ensuring the health of the entire population is reflected in the lack of health professionals, in poorly equipped clinics and hospitals, in long waiting lines, in the lack of medicines, in the lack of resources to expand and modernize health services, and above all, in the indicators of disease and loss of quality of life that plagues the majority of the Honduran population. "Public health is a serious problem," said Dr. Francisco Gomez in 1996 in his assessment of the situation of medical care in hospitals in San Pedro Sula where he worked for 31 years. "It is hard to realize that being poor in Honduras only guarantees you disease and death." That was in 1996. Dr. Gomez said that 23 years have passed with changes in government, medical and administrative personnel, but public health has not changed.⁸⁶

5.1.5 Covid-19 increases vulnerability.

On March 11, 2020, the first two cases of COVID-19 were reported in Honduras. The national government had already declared a state of health emergency in February 2020 to respond to the dengue epidemic that in 2019 affected more than 100,000 people.⁸⁷ The 2019 dengue epidemic was the worst in Latin America, hitting Honduras and its weakened health system the most. On March 20, the dengue emergency gave way to Covid 19 and the lockdown decree to control the pandemic. On March 26, 57 cases and the first death caused by the virus were reported.⁸⁸

Covid 19 cases have increased rapidly since March. The coronavirus arrived at the presidential home when the president and his wife were diagnosed with Covid-19 on June 16, 2020.⁸⁹ On July 11th, the total number of cases reached 27,053 throughout the country, the majority in Tegucigalpa (10,034 cases) and in San Pedro Sula (11,310 cases). In Colón, 277 cases were reported; in Atlántida, 1,137 cases; and in Yoro, 1094 cases.⁹⁰ By August 18, 2020, the number of Covid-19 cases reached 50,995,⁹¹ a sign of a pandemic still out of control.

The health system, already in critical condition before the pandemic, has not been able to respond effectively to prevent and manage the Covid-19 pandemic. Without sufficient tests, emergency care beds, mechanical respirators and protective masks, the precariousness of the system in tandem with the corruption and ineptitude of public officials, have increased the vulnerability of the population that needs medical care,⁹² and has put health professionals in clinics and hospitals at greater risk. On June 4, it was reported that more than 100 health professionals have been infected by the coronavirus in Honduras.⁹³

The pandemic has exacerbated social and economic insecurity and food insecurity. Some studies project that the pandemic will leave half a million people without work and an economic crisis not comparable to others that Honduras has experienced.⁹⁴ According to the Observatory of Social Protest of the Committee for Free Expression, at least 83 protests demanding food have been registered since March 23.⁹⁵ "At this time, the people who live from day to day are no longer thinking about the danger of the coronavirus, but how to eat. We are aware that this disease kills, but hunger is also destroying us little by little."⁹⁶

The Covid-19 pandemic has increased the vulnerability of people and communities affected by extractive activities in Honduras.

Finally, the pandemic has created the perfect storm for corruption in Latin America. "In times of emergency, risks increase exponentially because controls are relaxed and people think that in this situation anything goes."⁹⁷ The JOH government has a budget of 82 billion lempiras (\$ 3.4 billion) to address the Covid-19 emergency.⁹⁸ Concerned citizens demand transparency regarding the effective and timely use of these funds for those who need it most. However, the first cases of corruption related to Covid-19 in Honduras are already known. Transparency International (TI) in Honduras, presented a report on June 24 documenting the lack of purchase planning, advance payments in the millions without guarantees, and the absence of penalties for late deliveries under the responsibility of INVEST-H - Strategic Investment of Honduras, a government organization for the execution of development programs.⁹⁹ At the center of these corruption allegations is the fraudulent purchase of seven mobile hospitals for \$ 48 million.¹⁰⁰

The corruption virus is as harmful to health as the coronavirus is. The Honduran government, unable to respond effectively to the pandemic, has been able to continue its repression against human rights defenders. COFADEH reported that 45 defenders were attacked and threatened and 7 journalists have been assaulted during the curfew and the suspension of constitutional guarantees.¹⁰¹

5.1.6 Extractive industries affect the most vulnerable.

It has been reported that in Honduras there are more than 372 exploration concessions and 57 mining exploitation concessions. At the national level, there are a total of 335,359 square kilometers under control of mining companies, approximately 30% of the national territory.¹⁰² These concessions are not established in unclaimed territories. On the contrary, the appropriation of territories for mining is carried out on lands where rural communities live and in state-owned lands such as basins and water-producing areas, natural reserve zones and protected areas where, according to the law, there should be no mining concessions. These are the "territories at risk"¹⁰³ for human security and environmental integrity.

As stated in the introduction to this report, 137 mining and energy and hydrocarbon production concessions in Honduras are located in indigenous and Afro-Honduran territories. The populations in these territories are the ones who have to face the direct impact of extractivism from an extremely vulnerable position due to the following factors:

- a) The lack of education, adequate food, and access to safe water, environmental sanitation and health care services.
- b) Lack of information on the impact of mining projects and difficulty in understanding the legal and technical language of environmental impact studies and project approval processes.

- c) The poverty that drives the population to believe in the possibility of employment and economic benefit from mining industries.
- d) Political exclusion that prevents local communities from participating in Prior Consultation processes and in decisions about the acceptance and execution terms of mining projects.
- e) The strategies of recruitment, persuasion, intimidation, deception, and violence that mining companies use to take possession of land and water sources.

The strong evidence of the vulnerability and insecurity found in the homes of Abisinia, Nueva Esperanza, and San Francisco Locomapa is similar to that of thousands of households living in the same conditions throughout the country.

5.1.7 The slow violence of extractivism.

The vulnerability and insecurity found in the study communities and throughout the country is closely related to the violence in which the affected populations live and die; visible and dramatic violence such as that seen in the news in the media that tell of the threats, attacks, the wounded and the dead every day, and "slow violence" that remains "invisible" because it does not have the tantalizing impact sought by the media or political leaders. In his book "Slow Violence and the Environmentalism of the Poor," Rob Nixon defines slow violence as that which occurs gradually, which disperses through time and space, hides public attention and which erodes and wears away the person and the community.¹⁰⁴ Slow violence is hidden in statistics and in reports full of data on poverty, violence and disease that prevent us from seeing that behind each piece of data there is or was a person, a Honduran who cannot have a healthy and dignified life.

Slow violence leads to "slow death," that caused by poverty and limited education, malnutrition, diseases caused by water insecurity and by living in toxic environments marked by tension, anguish and uncertainty, and by the lack of basic public services that guarantee health care and quality of life.

In this context of vulnerability and violence, what does the population think about mining? How have communities affected by extractive industries and policies responded in Honduras?

5. 2. How communities are responding.

5. 2.1 Opinions on mining in local communities.

According to the opinions of those surveyed in Abisinia, Nueva Esperanza, and San Francisco Locomapa, most residents believe that mining causes environmental problems (89.8% of respondents); they do not believe that mining can bring benefits to the community (68% of respondents); they do not believe in mining as a catalyst for local development (55.8% of respondents); and they do not agree with the influx of mining projects in their communities (74.8% of respondents). In sum, there is clear rejection of mining in these communities.

Similar views have been expressed by other communities across the country. A census of citizen opinion in September 2011 on the impacts of metal mining revealed that 80% of those interviewed affirmed that mining negatively affects health (84.7% of those interviewed), water (86.5% of those interviewed), and land (90.2% of interviewees). This census also indicated that 91.1% of the population rejects open-pit mining because it is harmful to the country (although 89.3% would agree with metal mining if it used methods that did not affect the environment).¹⁰⁵ A 2012 survey found that the surveyed population rejects open pit mining and the use of cyanide. A majority of respondents also believe that mining companies are not respectful of the rights of indigenous peoples (62.2% of respondents) or the human right to water (57.3% of respondents).¹⁰⁶

In the 2016 national public opinion poll conducted by Radio Progreso and the ERIC, survey respondents said they were against the exploitation of forests (97.3%), the privatization of water (92.8%), and the development of mining projects (69.4%).

These opinions are a reaction to the threat of losing the land, water, and forest that are the basis of the daily life of rural communities, through “dispossession by possession or accumulation by dispossession,”¹⁰⁷ that is to say, privatization of natural resources such as water and land, and the forced eviction of people from communal territories, and the suppression of alternative forms of production. The results of the aforementioned opinion polls are contrary to the official discourse of the government and private sector sectors and show that there is no national consensus or general acceptance by the population of the policies and practices that promote mining and extractive industries in Honduras. This lack of consensus and acceptance is the catalyst for the resistance of populations in the countryside and the city that defend their land, their water, their health and quality of life.

5.2.2 Social and political resistance.

Political elites and governments in Honduras have shown no interest in public consultation on issues of national and local importance such as the expansion of mining. This lack of consultation includes Prior Consultation. Prior Consultation is the right of a population to be consulted and to participate in an informed and free manner in investment, development, exploration and extraction plans within its territory. These rights are described in Convention 169 of the International Labor Organization (ILO) on indigenous and tribal peoples. The Honduran government ratified this agreement in 1995. Article 50 of the Honduran General Mining Law indicates that Convention 169 must be respected. However, there are numerous cases that indicate that the right to prior consultation is not fulfilled.

There are 50 mining territorial conflicts in areas where it is prohibited to do mining activities including agricultural and water-producing areas.¹⁰⁸ There are also 234 communities living in areas destined for concessions for metallic and non-metallic mining extraction and “there is no data confirming that these communities agree to be in the area of influence of mining activities.”¹⁰⁹ This lack of acceptance is closely related to the fact that the communities have not been consulted and have not expressed their acceptance of mining operations in the territory in which they live.

The communities of La Abisinia, Nueva Esperanza and San Francisco Locomapa were not consulted about the mining and logging activities carried out in their territory. The resistance against these activities, the conflict and the violence that led to attacks, imprisonments and the death of three indigenous people in San Francisco Locomapa for opposing the extraction of antimony and wood in their territory are described in detail in the first report of the project SAARG entitled “Socio-environmental impact of mining in the northwestern region of Honduras in light of three case studies: Montaña de Botaderos (Aguán), Nueva Esperanza (Atlántida) and Locomapa (Yoro)” published in August 2016.

At the beginning of the 2000s, civil society organizations (residents, non-governmental organizations and churches) that emerged in the Valle de Siria managed to obtain the declaration of unconstitutionality by the Supreme Court of Justice of Honduras of some articles of the Mining Law, and they managed to halt the expansion of Goldcorp's mining operations in 2008.¹¹⁰ In recent years, resistance against extractivism has intensified in Honduras. In 2014 the municipality of El Negrito in Yoro was the first municipality to declare itself free of mining exploitation. In that year the municipalities of Balfate (Colón), San Nicolás (Santa Bárbara), and Catacamas (Olancho) were also declared free of mining. The sector of La Florida (near Tela, Atlántida) that is home of 16 communities including Nueva Esperanza, one of the communities that participated in this study, declared itself free of exploration and mining operations on August 16, 2014.¹¹¹

In 2015 the municipality of San Francisco (Atlántida) declared itself free of mining. In 2016, Mayan communities in the municipalities of Copán Ruinas, Santa Rita and Cabañas (Copán) did the same. The municipality of Ceguaca (Santa Bárbara) also declared itself free of mining exploitation in June 2016.¹¹²

La Paz is one of the departments with the largest number of municipalities that have declared themselves free of mining and hydroelectric projects. In 2017 the municipality of La Paz (La Paz) declared itself free of mining. The municipalities of Guajirito and Santiago de Puringla (La Paz) have adopted the same decision supported “by dozens of Lenca communities” who said no to mining and hydroelectric projects.¹¹³

In March 2017, the residents of the municipalities of Minas de Oro and San José del Potrero (Comayagua) held a plebiscite so that their residents could give their opinion on mining. The majority said “no” to open-pit mining in Minas de Oro and San José del Potrero (98.14% of voters in both municipalities).¹¹⁴

In 2018 the municipalities of Tela (Atlántida), Orocuina (Choluteca), Nueva Frontera (Santa Bárbara), and San José de La Paz (La Paz) were added to the list of mining-free municipalities.¹¹⁵ In August 2018, residents of Abisinia in Tocoa, Colón, said no to mining.¹¹⁶ In September 2018 it was reported that the residents of the Florida sector (Atlántida) decided to declare themselves in permanent resistance against mining. The measure was taken to “preserve health, food, biodiversity and natural resources for future generations.”¹¹⁷ In 2019 the municipalities of El Triunfo (Choluteca), Arizona (Atlántida) near Nueva Esperanza, and Atima (Santa Bárbara) declared themselves free of mining. In March 2019 the municipalities of San Nicolás and Nuevo Celilac declared themselves “green municipalities, free of extractivist projects.”¹¹⁸ In November 2019, the majority of the population (97% of voters) in Namasigüe (Choluteca) in sovereign consultation rejected mining concessions and photovoltaic parks.¹¹⁹ “After a bloody fight,” Tocoa (Colón) declared itself free of mining.¹²⁰

It has been reported that at least 35 municipalities have adopted declarations of being free of mining in Honduras.¹²¹ These declarations made through open councils, one of the most transparent ways of making decisions in the public interest, are valid for three years, in accordance with article 19 of the Municipalities Law. Despite their relative short duration, the declarations of mining-free municipalities are evidence of the population's rejection of the threats to human security and environmental integrity that come with extractivism, and constitute a blunt criticism aimed at authorities and public policies of a state that has failed to fulfill its functions of protecting the human security of all Hondurans.

5.3. The failed state in Honduras: Human (in)security versus the security of the captured and militarized state.

5.3.1 The failed state and human insecurity.

Lastly, where is the state in this situation of vulnerability and human insecurity of its citizens? “Honduras ranked 75th out of 178 countries in the “Index of Failed States,” was reported in 2012.¹²² Indeed, we are on the way to it, to a failed system and state,” 2017.¹²³ “This country left us...Honduras is a failed state sitting on a social powder keg about to explode,” 2018.¹²⁴ “We must begin to think very seriously that [Honduras] is a narco-state and a failed state,” 2019.¹²⁵

“Premodern state,” “unstructured state,” “weak state,” “fragile state,” “complicit state,” “collapsed state,” “captured state,” and “criminal state”. These are some of the qualifiers that reflect the different concepts and theories about the state, its functions, and the causes and consequences of state failure.¹²⁶ The concept of “failed state” emerged in the early 1990s to investigate states that are descending into violence and lawlessness, endangering their own citizens, and threatening their neighbors with refugee flows, political instability and wars.¹²⁷ Academic and political debate continues about failed states and state failure indicators.¹²⁸ Nevertheless, several methodological approaches point out factors that explain the state's failure including the inability or lack of will of the state to provide basic services and respond to the demands of its citizens, rampant corruption, general insecurity, and the loss of legitimacy and sovereignty.

The state exists to fulfill certain minimum functions for the safety and well-being of its citizens. Among the goods that the state must provide are, in the first place, the political and social security goods including the protection of the national territory, and the prevention of crime and threats to human security. These goods are followed by the protection of essential freedoms and rights, health care, education, infrastructure, the promotion of economic development, and the regulation of environmental goods.¹²⁹

States begin to fail when they can no longer or do not want to provide the political and social goods that citizens require. The following problems have been identified as causes of the state failure:¹³⁰

- Inability to provide internal and external security.
- Inability to provide essential public services.
- Economic inequality and violent competition for resources.
- Institutional instability.
- High levels of corruption.
- Deficiencies in the legal system.
- Inability to ensure development and human security.

The results of this research in Abisinia, Nueva Esperanza, and San Francisco Locomapa have made evident the lack of access to education; poverty manifested in subsistence agricultural economies, precarious housing and lack of electricity services; lack of access to sufficient and nutritious food all the time for the whole family; lack of access to quality and affordable health services; and the lack of access to safe water and sanitation services. The reality of these rural communities is a reflection of the national reality of widespread human insecurity, as indicated by the national data that have been examined, and is a consequence of the state's failure to protect the Honduran people.

5.3.2 Personal and community insecurity vis-à-vis the state and the power elites.

What are the security indicators of the person as an individual, as a member of the community and as a citizen in Honduras?

"Welcome to Honduras, the most dangerous country on the planet."¹³¹ "Honduras among the most violent countries in Latin America."¹³² In this decade Honduras has figured as one of the most violent countries in the world due to its high levels of conflict, violence and homicides. The crackdown on protests that followed the November 2017 elections killed 22 civilians and one police officer.¹³³ During the first quarter of 2019, 777 homicides were recorded, representing just under nine homicides per day. In addition, there has been a disturbing increase in massacres (murders of three or more people) since the beginning of 2019. In the first six months of 2019 alone, almost 120 Hondurans have died in at least 34 massacres, that is, one massacre every five days.¹³⁴

In 2011 Honduras had the highest homicide rate in the world with 93.2 murders per 100,000 inhabitants. In 2016 Honduras "60 people per 100,000 inhabitants still die, when for the UN any rate higher than ten is considered an epidemic."¹³⁵ This rate dropped to 42.8 per 100,000 residents in 2017.¹³⁶ Despite the decline in homicide rates in recent years, violence continues rampant and insecurity continues.¹³⁷ Journalists, human rights activists and environmental defenders, lawyers, indigenous peoples, Afro-descendants and Garifuna communities, migrants and members of the lesbian, gay, bisexual, trans and intersex (LGBTI) community are the most vulnerable to violence.¹³⁸ "Honduras, one of the most dangerous countries to practice journalism."¹³⁹ In a 2016 report, the National Commissioner for Human Rights (CONADEH) reported that 25 journalists were killed between 2014 and 2016. About 91% of journalist killings since 2011 remain in impunity.¹⁴⁰ "Violence has increased in the country against social communicators; in 2019 there were seven murders, two occurred in the last five days, the journalist José Arita from Puerto Cortés and the journalist Johana Alvarado from Catacamas, Olancho."¹⁴¹ Germán Vallecillo Jr. and Jorge Posas, journalists from channel 45 TV, were murdered on July 1 in La Ceiba, in the first murder of journalists in 2020.¹⁴²

The Committee of Relatives of Disappeared Detainees in Honduras (COFADEH) noted that between 2010 and 2015 there were 3,065 cases of undue application of the judicial system for human rights defenders, and 22 defenders were murdered.¹⁴³ In 2016, CONADEH reported 16 violent attacks against lawyers, including 13 murders. In that year, the Inter-American Commission on Human Rights described Honduras as "one of the most hostile and dangerous countries for human rights defenders" on the American continent.¹⁴⁴

Defenders of water, natural resources and environmental integrity have been the targets of violence. The first report published in 2016 of the project “Mining, Development and Justice: A Community Initiative for Education and Advocacy” shows that the extractive industries have become the main source of land conflicts, persecution, aggression, threats and homicides in Honduras.¹⁴⁵ The article “Mining Investors Insist on Taking over Honduran Territory” details the threats to journalists, international observers, priests, and the murder of journalists and indigenous leaders.¹⁴⁶

"In Honduras, defending nature is a deadly activity"¹⁴⁷ that cost the life of Berta Cáceres, the water defender of the Lenca indigenous community, who was assassinated on March 3, 2016. Berta is one in the long list of people attacked and violated for their environmental activism in Honduras. Global Witness in its 2017 report described Honduras as the deadliest country for environmental activism in the world, noting that 120 people have been killed since 2010 for opposing mines, dams, and logging.¹⁴⁸ Defenders of the environment are threatened worldwide. "For Latin American environmentalists, death is a constant companion."¹⁴⁹ From 2009 to 2014 more than 450 environmentalists were killed, half of these deaths in Honduras and Brazil.¹⁵⁰ At least 207 defenders were killed in 2017 according to a Global Witness report, and approximately 60% of these murders occurred in Latin America.¹⁵¹ More than three people were killed each week in 2018, with a total of 164 murders of land, water and environmental defenders worldwide linked to resistance against mining, agribusiness, dams, and logging.¹⁵²

The cost of violence in Honduras is extremely high. According to a report by the Inter-American Development Bank (IDB) on the cost of violence in Latin America, Honduras incurs the highest amount of crime-related costs in the region, with costs in terms of welfare that can go up to 6.50 % of the Gross Domestic Product.¹⁵³

What is the state doing or not doing in Honduras regarding the situation of vulnerability and human insecurity experienced by communities threatened by extractive activities? Several studies and reports coincide in pointing out the following shortcomings in the functions of the Honduran state regarding the safety of the person and the community:¹⁵⁴

- **Lack of consultation.** Lack of information for the communities and dismissal of the wishes and demands of the population. Lack of legitimate procedures for consulting communities and non-compliance with the right to prior consultation.
- **Corruption.** Criminal groups linked to drug trafficking and businessmen who operate with armed people intimidate and bribe police, lawyers and judges to evade justice. In addition, misuse, embezzlement and theft of public funds. “Corruption kills”: The embezzlement of 300 million dollars from the Honduran Social Security Institute in 2015 seriously affected the health of the population and possibly caused the death of 3 thousand people.¹⁵⁵ In the Transparency International 2018 report, Honduras occupies the dreadful index of 132 out of 180 countries and the score of 29 out of 100 in the level of corruption, (the score 0 is for the highest level of corruption and the score 100 is for the absence of corruption), one of the worst corruption rates in Latin America.¹⁵⁶ "More than half of Hondurans believe that the government and the National Congress are corrupt."¹⁵⁷ About 54% of Hondurans estimate that corruption has increased in the last year (2019) and 62% considered that the government is failing in the fight against this scourge.¹⁵⁸ The Global Barometer of Corruption of Latin America and the Caribbean 2019 reports that in Honduras "91% of the interviewees think that corruption in the government is a serious problem and 54% consider that corruption has increased in the last year."¹⁵⁹
- **Stigmatization and criminalization of defenders.** In 2017, the state through the president of the Honduran Supreme Court stigmatized human rights organizations grouped in the Coalition Against Impunity.¹⁶⁰ "Organizations denounce brutal and systematic repression of protests in Honduras" to the IACHR in September 2019. "Nine members of the Tolupán indigenous tribe of San Francisco Locomapa and 8 defenders of the Guapinol and San Pedro rivers are currently facing criminal proceedings in retaliation for adopting a permanent protest against the influx of extractive projects in their territories."¹⁶¹
- **Impunity.** More than 100 peasant leaders in Bajo Aguán in the department of Colón have been killed since 2010 without any conviction from the perpetrators.¹⁶² In Honduras 75% of cases are not investigated and 88% never reach a judicial resolution.¹⁶³ Despite reducing the impunity rate for homicides from 96% in 2013 to 87% in 2017,¹⁶⁴ this rate remains high. The 2017 Global Impunity Index places Honduras among the countries with the highest impunity rates with a score of 65 points out of 100.¹⁶⁵

- **Deficient judicial system.** Lack of independence of the judicial system, obstruction of justice and “selective justice” when the judiciary drags its feet when it comes to protecting human and environmental rights defenders, but moves quickly in favor of the interests of business and politicians.¹⁶⁶
- **Institutional weakness.** Insufficient and contradictory regulatory frameworks; failure to comply with laws that protect health, water, natural resources and the environment.

The evidence on the living conditions of rural communities that has been presented in this report along with the opinions of the public, communicators, experts and leaders of Honduran civil society point to **a deep failure of the state in fulfilling its economic, social, and political functions.** Based on this evidence, the state's performance can be evaluated in relation to the elements of human security that were initially presented in Table 1: Types of security, risks and threats to human security. This evaluation is summarized in the following table.

Table 17: Assessment of the state in its function of ensuring human security.

Human security types	Evidence of risks and threats in Honduras	Has the state failed in Honduras?	
		NO	YES
1. Economic security	Persistent poverty, unemployment and subemployment. Precarious housing. Low educational levels. Small farm economies under threat. Land dispossession.		X
2. Food security	Lack of access to sufficient, nutritious and safe foods. Malnutrition.		X
3. Health security	Covid-19, infectious and chronic diseases, mental illness, accidents. Water and food contamination. Lack of access to quality health care and health insurance.		X
4. Environmental security	Exposure to toxic metals and substances. Environmental contamination, degradation of water, land, forests and other natural resources. Disasters. Climate change.		X
5. Personal security	Conflict, violence, trauma, homicides.		X
6. Community security	Conflict due to economic and environmental interests. Ethnic, religious and identity conflicts. Human rights abuses of vulnerable groups.		X
7. Political security	Political exclusion and repression. Obstruction of prior consultation and citizens' deliberation. Criminalization of protest and dissent. Human right abuses and violations. Corruption.		X

Evidently, the state in Honduras has failed its citizens in each of the seven elements of human security. This failure has been accumulating for many years. The Honduras 2006 human development report highlighted the “persistent stagnation in human development. The economic reforms, although with some macroeconomic achievements, have not favored the expansion of citizenship, since they have not contributed to significantly reduce the problems of poverty, inequality, and social exclusion.”¹⁶⁷

The world Human Development Index evaluates progress in three basic dimensions of human development: long and healthy life measured as life expectancy, access to knowledge measured as years of education and years of schooling of children, and standard of life measured by income or gross national product per capita. "Honduras, the second country with the worst level of human development in Latin America"¹⁶⁸ in 2017. The human development index for Honduras in 2000 was 0.554 and in 2019 it was 0.623, which ranked the country 132 out of 189 countries, evidence of low and extremely slow human development of the country.¹⁶⁹ "The brutal truth is that the vast majority of weak and failed states mainly put their own inhabitants at risk"¹⁷⁰ and pushes the population to emigrate and increase the ranks of refugees fleeing from insecurity.¹⁷¹ This is the reality of the state in Honduras.

How can a state that cannot and does not want to promote human security survive and continue in these conditions? The only way is through the capture of the state supported by the militarization of security.

5.3.3 The security of the captures and militarized state.

Extractive political institutions and the capture of the state.

In the book "Why Nations Fail: The Origins of Power, Prosperity, and Poverty,"¹⁷² the authors give a historical account of processes that have resulted in economic and social progress in some countries and delay and stagnation in others. The main thesis of the book states that more than geographic or cultural factors or lack of knowledge, the cause of inequality and poverty in many nations is explained by the "extractive political institutions" that in synergy with "extractive economic institutions" make up a state that concentrates the power of an elite dedicated to extracting income and wealth from society for their own benefit.

A state made up of extractive institutions is sustained by discrimination, corruption, lack of security in the protection of property, restrictions on the freedom of business, little citizen participation, a non-independent judicial system and a lack of public services such as education and health. How do elites maintain their control of the state and its extractive institutions? Through the "iron law of oligarchy"¹⁷³ that allows dominant groups of different political affiliations to alternate in power, always exercising control over the population. In Honduras, the dominant groups are organized into kleptocratic networks that "reap their profits through laws, regulations and their selective implementation that guarantee them undue income."¹⁷⁴ "The main objective that brings these kleptocratic networks together is of course to capture income sources disproportionate to the effort put in or the contribution made to the common good."¹⁷⁵ Elites in government, the military, and the private sector as well as organized crime "collaborate and occasionally compete to extract economic rents from legal and illegal activities. Leaders use security forces to keep the population compliant and to extract these rents."¹⁷⁶

This type of control over state institutions is done through the capture of the state and its institutions. The capture of the state has been defined in several ways. The International Monetary Fund defines it as "the effort of companies to shape the laws, policies and regulations of the State for their own benefit through the provision of illegal private profits to public officials."¹⁷⁷ The World Bank defines capture as "the ability of some actors in the political arena to be able to design or implement a policy that maximizes their private benefits to social welfare due to their greater bargaining power."¹⁷⁸ The process of state capture consists of blurring, diluting and erasing the separation of the public and private spheres to transform a system to benefit the elite minority at the expense of the less privileged majority.¹⁷⁹ The capture of the state has also been defined as the exercise of abusive influence by an "extractive elite"¹⁸⁰ on public policy processes and state agencies in favor of their interests and priorities and to the detriment of public interest, with potential effects on the inequality and in the correct performance of democracy.¹⁸¹

The extractive industries are part of the economic interests that seek and manage to capture the state, as Durand points out in his study "When the extractive power captures the state: Lobbies, revolving doors and environmental "paquetazo" (anti-environment measures) in Peru."¹⁸² This study demonstrates how large national and foreign corporations (in particular, the extractive industries) have achieved "excessive influence" in obtaining laws, resources and privileges that mainly benefit their economic and investment portfolio.

In Honduras "the network of relations that has been woven between national and transnational capital translates into the creation of influential power networks that permeate the state institutional framework, which they use to strengthen their presence and economic and social domination."¹⁸³ These networks are networks of corruption and impunity with "a wide margin of maneuver, especially for their ability to penetrate and capture state institutions" including the judicial system.¹⁸⁴ The problems of corruption "are linked to the absence of strong institutions, the clientelism exacerbated by the courts and state authorities, the non-observance of the legal frameworks and their abuse as political loot combined with a weak participation of the citizens."¹⁸⁵

The history of the political capture of the Honduran state has its origin in the "oligarchic matrix" from which the republic emerged that has produced a "model of exploitation of natural, state and social resources in which it is difficult to distinguish between what is lawful and what is not, between the legal and the illegal, the legitimate and the illegitimate."¹⁸⁶ This capture explains the political decisions of recent administrations, especially that of the campaign of current President Juan José Orlando Hernández (JOH) "Honduras open for business"¹⁸⁷ to promote a regulatory and financial framework that favors mining companies mining and the expansion of mining activities.

One of the most recent examples of the capture of the state by extractive elites is the decision by the national congress to change the boundaries of the Carlos Escaleras national park known as Montaña de Botaderos, an area of high-water production, to favor a mining company. "The National Congress under the presidency of Juan Orlando Hernández revealed an explicit intention to benefit mining companies to the detriment of the environmental and territorial rights of the communities."¹⁸⁸ This decision and the impact on the quality of the water of the Tocoa river and 14 communities in the Abisinia sector have caused the Guapinol conflict and the criminalization of water defenders.¹⁸⁹

The militarized state and the failure of the state security policies.

Military involvement in the state has a long history in Honduras. In the last decade with the 2009 coup d'état, the expansion of the role of the military in the state and Honduran society took a new direction of "remilitarization of security"¹⁹⁰ with the Porfirio Lobo government and the modification of the constitution by congress that allowed the military to carry out tasks previously carried out by the national police.¹⁹¹ Since 2010, the congress has become a "legislative shield"¹⁹² to give legal cover to the militarization of the country.

With its campaign of "a soldier in every corner, neighborhood, village and hamlet"¹⁹³ in 2013, Juan Orlando Hernández (JOH) continued to expand the functions and activities of the military in public security with the creation of the Policía Militar del Orden Público (PMOP) – Public Order Military Police, in August 2013. In addition to militarized security, these activities now include the education of young people with the "Guardians of the Homeland" program aimed at controlling the presence of "maras" (gangs) and drug use, but which has been criticized by the IACHR because "it promotes a militarized culture that is contrary to peace, in addition to stigmatizing and putting boys and girls from certain social groups at risk."¹⁹⁴

In September 2019 JOH created the Honduran Agricultural Development Program to be managed by the Armed Forces. It will start with 66 million lempiras and for the next four years it could reach 3,843 million lempiras. This program has caused concern because it was created without consulting farmers; it gives the military responsibilities that belong to the National Agrarian Institute and the Ministry of Agriculture and Livestock; it puts food sovereignty at risk; and because it can be used to repress the social protest against the extractive industry. "The agricultural plan of the Armed Forces will have as a priority the departments where more extractive projects have been approved, and where there has been more resistance to defend the land."¹⁹⁵ The millions of lempiras that are delivered to the armed forces serve to "buy allegiances" in the military high command and "mount a social control" of Honduran agriculture.¹⁹⁶

The growing role of the military in national life is evident in public spending budgets. According to information from the Stockholm International Institute for Peace Studies (SIPRI), Honduran military spending grew from 779 million lempiras in 2000 to 3,502 million lempiras in 2011, equivalent to a 11-year increase from 0.7% to 1.1% of the country's Gross Domestic Product (GDP). The article "Honduras leads arms build-up in Central America"¹⁹⁷ indicates that between 2004 and 2014 the military budget that expanded the most in the Central American region was that of Honduras (an increase of 149.1%). "The significant purchases of arms from Honduras stand out: 1,518.6 million dollars, 75.3% of the regional total."¹⁹⁸ These data come from the Fifth State Report on the Sustainable Human Development Region 2016 published by the State of the Nation Program (PEN) of Costa Rica. This report also indicates that military spending per person increased between 2004 and 2014 in Honduras from \$ 9 (L. 203.85) to \$ 30.7 (L. 695.36), three times more than the budget allocated to the Judiciary (\$ 11 per capita - which is equivalent to 249.15 lempiras- for 2014).¹⁹⁹

Honduran military spending was \$ 189 million in 2010. In 2018 this spending reached \$ 400 million, which means that military spending doubled in just 8 years.²⁰⁰ Military expenditures in recent years exceeds that of 46 countries including 6 European countries.²⁰¹ For 2019, an increase of more than 571 million lempiras is estimated for the Honduran Armed Forces, which would mean that only from the General Budget of the Republic, the Armed Forces will have about 8,600 million, not counting the contributions of the Security Tax and donations from the United States.²⁰²

In the 2019 budget (271,678 million lempiras), security and defense had a budget increase of 7.1%, higher than the 3% increase in the Ministry of Education and 1.8% in Health, "which shows that the distribution of funds relegates to a second-tier vulnerable sectors such as health, education, children, youth and women, and the productive infrastructure" of the country.²⁰³

The objectives and priorities of state policies are evident in public spending budgets. In the case of Honduras, the variations in the budget executed between 2014 and 2018 indicate that the priority of those who manage the state is not to strengthen human security. In education, research and culture, the budget percentage drops from 21.1% in 2014 to 20.4% in 2018. In the same period, health services increased only 0.1% from 9.7% to 9.8%. Housing and community services also increases by only 0.1% from 0.2% to 0.3%. Protection of the environment drops from 0.8% in 2014 to 0.5% in 2018.²⁰⁴ Honduras "between an increasing military spending and a steep fall in social spending"²⁰⁵ shows the lowest social expenditures among Central American countries.

The approved Honduran budget for 2020 amounts to 282,405 million lempiras²⁰⁶ (approximately \$ 11,413 million as of December 13, 2019). According to a report from the Central American Institute for Fiscal Studies (ICEFI) in November 2019, the draft budget for 2020 includes cuts in several entities. "Due to its importance, the reduction in the Ministry of Education stands out, which would go from 4.85 to 4.49% of GDP, between 2019 and 2020; also, the Ministry of Health budget would be reduced by going from 2.39 to 2.37% of GDP."²⁰⁷ The institution that suffers the most cuts in relative terms is the Ministry of Infrastructure and Public Services, as it goes from 0.82 to 0.40% of GDP. In the category of capital expenditures or investment in assets, there are reductions in various areas, but "the 39.6% increase in investment for military and security equipment stands out."²⁰⁸

In its report on the draft 2020 budget, ICEFI pointed out that the cuts in social areas contravene the provisions of the Convention on the Rights of the Child and General Comment number 19 (OG # 19). This Observation establishes that, in the preparation of the public budget, the states must not adopt regressive measures in a deliberate way that affect the rights of the child.²⁰⁹

It is important to note that military expenses such as those of the Ministry of Defense are financed through taxes such as the security tax and especially the sales tax, therefore, it is the citizens who pay to sustain the captured and militarized state. The growing citizen contribution to militarized security is reflected in the increase in per capita spending by the Ministry of Defense from 328 lempiras in 2010 to 885 lempiras per capita in 2017.²¹⁰

Furthermore, the general mining law establishes that 2% of the profit generation of mining companies is transferred to the security rate, "which in some sense implies that the armed forces indirectly assume the responsibility to protect companies, through private security companies."²¹¹

What is the impact of using public funds to sustain Honduras' militarized security policies? What do citizens get in exchange for their contribution to financing security programs?

A report from the Association for a More Just Society in June 2019 states that the homicide rate fell from 79 per 100,000 inhabitants in 2013 to 43.6 in 2017.²¹² In addition, the Impunity Index fell from 96% in 2013 to 87% in 2017. From the perspective of public health and human security, the decrease in the homicide rate and the slight improvement in the impunity rate are an important achievement.

However, problems of insecurity, violence and impunity that affect a large part of the population persist. Despite its decrease nationwide, homicide and massacre rates remain high. Although the impunity index has decreased, Yoro, Atlántida, Colón and Cortés have the highest levels of impunity in 2017, above 90%.²¹³ These are among the departments with the largest number of extractive projects where the concession processes and dispossession of natural resources of communities are complemented by repressive policies based on the militarization of public spaces.²¹⁴ "The measures disguised as public policies for security adopted by the government have failed. Every day the growth and rebound of violence is more evident, with increasingly violent and grisly methods."²¹⁵

The protest of the population caused by the approval on April 25, 2019, of laws for the transformation of national education and health systems caused a massive protest because, in the opinion of the teachers' leaders and the Medical College of Honduras, they are leading to the privatization of these sectors and the massive firing of employees.²¹⁶ In the state's militarized response to this protest, the government spent at least 130 million lempiras in 2017 to suppress citizen protests by importing bombs, grenades, torpedoes, mines, missiles, cartridges, and other ammunition.²¹⁷ The militarization of security indicates a return to national security doctrines, violence as a method of government, and the institutionalization of political repression.²¹⁸

As several national and international organizations and experts have pointed out, the stagnation and the reduction of resources for education, health, housing and environmental protection significantly affect essential areas of Honduran human security. The Social Progress Index measures the performance of a country through 51 indicators on the satisfaction of human needs (nutrition, water and sanitation, housing and personal security), the foundations of well-being (access to basic education, information and communications, life expectancy and access to quality health services, and environmental quality) and opportunity (rights and freedoms, corruption, inclusiveness, and access to advanced education). Honduras is ranked 98 out of 149 countries in the 2019 social progress index, among the three lowest in Latin America.²¹⁹ (The other two countries with the lowest rates in Latin America are Guatemala in position 101 and Nicaragua in position 103).

The militarization of security has not resulted in an improvement in the Peace Index that measures the level of security in society, domestic or international conflicts and the degree of militarization. The 2018 Peace Index report indicates that Honduras' ranking was 118 out of 163 countries. Honduras has suffered the most significant deterioration of its index in the Central American region due to its scores on lack of political stability, impact of terrorism and political terror.²²⁰ In 2019, Honduras fell back to the 123rd Peace Index, which reflects the same level of violence in 2013, evidence of the "failure of the repressive and militarized approach of security policies to solve serious crime problems."²²¹

"It is evident that we are in a very difficult situation ... Honduras is changing but it is not changing itself for the better; it is becoming a dispersed society, ethically disintegrated, without a sense of human solidarity, loaded with selfishness; a society that is suspicious, without reliable human capital, its territory is increasingly empty, that is what we are turning Honduras into."²²²

(6) CONCLUSION



(6) CONCLUSION

This report presents the results of the study "Mining, environmental health and human security: Results of household surveys and water evaluation in Abisinia (Colón), Nueva Esperanza (Atlántida) and San Francisco Locomapa (Yoro), Honduras." These results come from surveys of 206 households representing a total of 1,609 people, and from the water quality evaluation of 136 samples of water for human consumption and from 9 watersheds in the three communities.

To interpret these results, human security has been used as a methodological framework for evaluating the impact of the extractive model in all elements of security in Honduras: economic, food, health, environmental quality, personal and community security, and the political security of community residents as Honduran citizens. The ecological model in environmental health was also used as a methodological referent to understand the person and his/her quality of life not in isolation but as part of a specific context of family, community, society and state. Further, on the basis of the research results we have evaluated the responsibility of the state concerning the protection of environmental health and human security in Honduras.

6.1. Vulnerability and insecurity profile of Honduras' population.

The results of the study on mining, environmental health, and human security reveal more clearly and in depth the reality of vulnerability and insecurity of the people living in Abisinia, Nueva Esperanza, and San Francisco Locomapa. Following are the key aspects of this reality:

- The communities of Abisinia, Nueva Esperanza and San Francisco Locomapa are rural communities made up of households living in a situation of poverty (extreme poverty, in the case of San Francisco Locomapa) with precarious economies based on subsistence agriculture and small-scale cattle raising and in houses with few goods, without electricity (Nueva Esperanza and San Francisco) and without waste management services. In Abisinia, the largest town, people also earn their living from trade, construction activities and other services.
- The majority of the population has a low level of education and women have lower levels of education than men.
- Most households suffer from a serious situation of food insecurity as they do not have access all the time to sufficient, nutritious and safe food to maintain an active and healthy life for each member of the household. Food insecurity is more serious among the Tolupeán indigenous people of San Francisco Locomapa.
- As reported by community residents, water is necessary not only for human consumption and personal hygiene, but also for agricultural production and livestock. Households get water from nearby streams through public pipes (Abisinia), pipes connected to a stream or spring (Nueva Esperanza) and community wells (San Francisco). Access to water is a need that is not fully satisfied because there is not always enough water and many homes depend on precarious methods such as pipes that are frequently damaged; also, in seven households people have to walk to a waterhole or stream to fetch water.
- The assessment of the physical-chemical parameters of the basin water indicated that it is of good quality; however, the biological testing of drinking water showed that in most homes the water has total coliforms and therefore is not safe and is not suitable for human consumption. The elimination of coliforms requires the use of disinfection methods such as boiling water or the use of chlorine, but most homes do not boil water and in no community has chlorination treatments for water.

- The availability of toilets and waste treatment services are critical indicators of environmental health due to the risk of contracting infectious diseases associated with contaminated food and water. In the study communities, most people have a toilet connected to a septic tank while the rest have a latrine or do not have a toilet. However, there are no systems for solid waste management in any community.
- The situation of access to affordable and quality health services is disastrous. Only one household out of the 206 surveyed households has health insurance. When they have health problems, people resort to home remedies and, in more serious cases, they have to go to a health center or hospital, where in most cases they only give the prescription and few medications. Since these health services do not exist in Nueva Esperanza and San Francisco Locomapa, their residents have to spend on transportation to go to the hospitals or clinics in Tela or Yoro.

In sum, the profile of vulnerability and insecurity of the majority of the population of Abisinia, Nueva Esperanza, and San Francisco Locomapa is characterized by the lack of a stable and sufficient economic base, of complete education, of healthy eating all the time, of safe water and adequate sanitation services, and health insurance and access to affordable and quality health services. It is precisely this profile that makes these communities more vulnerable to the negative impact of extractive industries.

The situation experienced by the people of the study communities is neither unique nor isolated from the rest of the country. On the contrary, as shown above with sufficient national data, the vulnerability and insecurity profile of these communities is similar to that of rural populations and urban neighborhoods in Honduras where the population suffers the consequences not only of direct violence from trauma and homicide reflected in the painful statistics that have been presented in this report, but also of slow violence: that type of daily violence "less visible and persistent over time, and which is the product of years of environmental contamination, militarism and wars, developmental and environmentally destructive policies"²²³ that plague Honduras and countries in a similar situation.

In essence, the harsh reality of daily life in the homes of Abisinia, Nueva Esperanza and San Francisco is the same as that of thousands of Honduran homes condemned to a "slow death" caused by poverty, lack of basic public services, food and environmental insecurity, preventable diseases that were not avoided due to lack of access to insurance and health services, and the anguish and uncertainty of living in one of the most violent and insecure countries in Latin America.

6.2. Community concerns and resistance.

The day-to-day worries of the people in Abisinia, Nueva Esperanza and San Francisco Locomapa are similar to that of poor communities in rural and urban areas of Honduras: obtaining the resources and services every day for the survival of the person and the family.

Water, essential for life, health and the agrarian economy of rural communities, is a matter of great concern for families. Most respondents expressed concern about water, especially in regards to uninterrupted access to sufficient water and water contamination.

Concern about water extends to the environmental. Most people feel that the streams are running out of water and that the forests that produce water are being lost with the advance of deforestation. Regarding mining, the feelings of the residents were clear and forceful: they do not want mining in their communities. Despite the promises of mining entrepreneurs to create job opportunities and local development, the majority of the people surveyed in Abisinia, Nueva Esperanza and San Francisco Locomapa believe that mining causes environmental problems, they do not believe that mining can bring benefits to the community, and disagree with the influx of mining projects in their communities.

In this rejection of mining, the communities of Abisinia, Nueva Esperanza and San Francisco are not alone. Resistance to extractive policies and mining activities has spread throughout the country. Political elites and governments have shown no interest in asking and consulting the population on issues of national and local importance such as the expansion of mining. However, information and data from forums, assemblies, and surveys indicate that the majority of the population in Honduras believes that mining affects water, causes environmental problems, and does not respect the rights of communities. In the 2016 national public opinion poll carried out by Radio Progreso and ERIC, most respondents said they were against the exploitation of forests, the privatization of water, and the development of mining projects.

Consequently, it is clear that there is no national consensus or general acceptance of extractive policies and practices in Honduras. On the contrary, the number of citizens critical of mining appears to be increasing; the number of municipalities that say no to mining and hydroelectric projects and declare themselves free of mining is growing; and discontent with the state's extractive policies has become more evident, particularly with those of the Juan Orlando Hernández government.

6.3. Extractive policies, failed state, and human insecurity.

The reason of being and existing of the state is to fulfill certain minimum functions for the security and well-being of its citizens that include the protection of the national territory, the prevention of crime and threats to human security, the protection of liberties and essential rights, health care, promotion of education, investment in infrastructure, promotion of economic development and regulation of environmental goods. States begin to fail when they do not have the ability or the will to fulfill these functions. As demonstrated in this study, the state has failed citizens in Abisinia, Nueva Esperanza, and San Francisco Locomapa and in hundreds of towns in rural areas and urban neighborhoods where 68% of the population of Honduras lives.

The state failure in Honduras is a consequence of several factors including the inability to provide internal and external security; the inability to provide essential public services; economic inequality and violent and illegal competition for resources; the lack of consultation with citizens and the criminalization of the protest; the chronic institutional instability; the high levels of corruption and deficiency of the legal system; and the inability to ensure the well-being and human security of the entire population.

Extractive policies that seek to expand mining and insert Honduras into the world metal market are one of several economic growth policies promoted by Honduran elites and governments. These elites and their political leaders organized in networks of power, corruption and impunity have captured state institutions to extract income and wealth from mining and communities for their own benefit. This confirms the character of the extractive model and of the misery of mining in Honduras: extracting resources that are not destined for human development and that do not benefit the majority of the population. In this model, the captured state exists to facilitate the extraction of minerals and income, but it does not exist to guarantee human security and support the most vulnerable.

"If the State means the satisfaction of our basic needs and security of living in peace, then we the poor have never had a State in Honduras."²²⁴

Faced with the growing rejection of mining and the citizen mobilization to protest against government policies, the survival of the state dominated by extractive economic institutions and policies is only possible with the militarization of the state and security policies. Since the 2009 coup, the expansion of the role of the military in the Honduran state and society has resulted in the remilitarization of social control and security in Honduras. The public budgets make clear the priorities of the captured and militarized state: increase resources for military spending and decrease resources for social spending. The lack of resources for education, health, housing, environmental protection, infrastructure and public services significantly affects the quality of life of Hondurans. The budgets executed between 2014 and 2018 clearly indicate that the priority of decision makers in the state is not to strengthen human security.

Despite the great political support and resources it receives, militarized security has not resulted in substantial improvements in the rates of social progress and peace that place Honduras among the lowest ranks in Latin America. On the contrary, as these indices indicate, there is stagnation and decline in income distribution, in access to quality education and health services, in access to justice, and in the personal security and political security of Honduran citizens.

“Honduras, in almost its two centuries of republican life, saw its common goods systematically parade abroad in exchange for promises of peace, progress and development that never came. To such an extent that, now, the almost bicentennial country looks inwardly and only finds, as an inheritance of progress, huge amounts of environmental waste, useless lands, rivers and beaches contaminated or dead, impoverished people discarded by the non-existent labor market that are fleeing abroad, merchants of oxygen and water lurking to fence the land, and an evidently disastrous climate destiny.”²²⁵

“If the State means the satisfaction of our basic needs and the security of living in peace, then we the poor have never had a State in Honduras.”

6.4. The urgent need for alternatives modes of social, political and environmental coexistence in Honduras.

The resistance of the population towards hydroelectric, logging, and mining projects expresses not only the rejection of these activities but also the need to seek and implement alternative ways of economic development, social and political coexistence, and protection of natural goods. In order to overcome the current “pathologies of extractivism,”²²⁶ transition pathways towards post-extractivism are now being sought in Honduras and in other countries.

These transitions aim to counteract in the first place the notion that poor countries have no other development option than to exploit and export minerals through the “predatory extractivism”²²⁷ that has been established in several countries including Honduras.²²⁸ Post-extractivism seeks other ways to eradicate poverty, to use and protect natural resources such as water and land, and to value traditional knowledge and practices of health care, food production and environmental sustainability. Suma Kawsay or the “Good Living” of South America that reconciles man with nature, the Ubuntu that highlights the importance of human mutuality in Africa, the Swaraj of India that emphasizes the self-sufficiency of communities and self-government,²²⁹ and the worldview of the Lenca indigenous people of Honduras born “from the land, the water and the corn”, as Berta Cáceres said, to guard the rivers and give life for the good of humanity and of the planet.²³⁰

The political changes that are sought in the post-extractivist transition and the “construction of other futures”²³¹ require a deep process of democratization and reform of the state that results in greater control of government institutions by civil society; policies that respect human rights; regulations and laws that limit, and in certain cases prohibit, extractive activities; and policies that direct the revenues of extractive industries toward local development and human security.

The Covid 19 pandemic has created an unprecedented crisis in Honduras and around the world. Extractive companies, despite not being essential, have continued to operate and expose their workers and their families to the coronavirus.²³² In addition, they are taking advantage of the crisis to seek more flexibility in the laws that regulate prior consultation, environmental standards and citizen participation, and to promote their industries as a way out of the economic crisis in countries like Honduras that depend on extraction and export of primary commodities. Governments captured by extractivism have also taken advantage of the health emergency to constrain and silence legitimate protests by those affected by mining.²³³

These urges to return to pre-pandemic normality are not the response needed to deal with the crisis. The post-extractivist transition is now joined by the effort to build a post-pandemic model, a new normal in which civil society, community and faith organizations, and research centers interested in the protection of health, the environment and human rights bring back the role of the state as guarantor of human and environmental security.

From a faith perspective, Pope Francis' encyclical *Laudato Si* also points out alternative paths to the "extractive logic"²³⁴ of the current world. Faced with the multiple factors of environmental damage such as that of extractive companies whose reasoning is, as the Latin American Episcopal Council (CELAM) says in the light of *Laudato Si*, "to exploit as much material in the shortest possible time, causing great impacts in ecosystems and affecting the lives of the inhabitants of the territories,"²³⁵ *Laudato Si* proposes an integral ecology and an ecological conversion to build other modes of social, political and environmental coexistence.

"There are not two separate crises, one environmental and the other social, but a single and complex socio-environmental crisis. Strategies for solution demand an integrated approach to combating poverty, restoring dignity to the excluded, and at the same time protecting nature."²³⁶ Integral ecology encompasses five dimensions: environmental, economic, social, cultural, and everyday ecology, in relation to the ethical principle of the common good and justice between generations.²³⁷ Within the integral ecology of *Laudato Si*, water is of special importance. "In reality, access to safe and clean water is a basic, fundamental and universal human right because it determines the survival of people, and therefore it is a condition for the exercise of other human rights."²³⁸ In a similar way to the ecological model of public health, the social ecology of *Laudato Si* "is necessarily institutional, and progressively reaches the different dimensions that go from the primary social group, the family, through the local community and the nation, to the international realm."²³⁹ *Laudato Si*'s call for ecological conversion has reached the entire world. For example, at the world meeting convened by the Pan-Amazonian Ecclesial Network (REPAM) and the Jesuit Conference of Canada and the United States (March 2019), indigenous leaders, Jesuits and cardinals called for an ecological conversion to protect creation based on the experiences of those most affected by extractive industries, environmental degradation and climate change.²⁴⁰

The common good defined in *Laudato Si* as a principle based on the human person with basic and inalienable rights ordered to its integral development²⁴¹ can be understood in the light of this study as economic security, food security, health and environmental security, security of the person and the community, and the political security of the citizens of a country. In *Laudato Si*'s vision, the defense of the common home and the common good is the obligation of the whole of society but above all of the state.²⁴² According to CELAM, this "implies the responsibility of the state to ensure that in the decisions on projects of the extractive companies, selfish and short-term visions guided by the maximum revenue in a minimum time do not prevail, but rather the sincere concern for the good of all citizens, especially the poor, the marginalized and the most vulnerable sectors of the population as well as for the good of the earth, our common home."²⁴³ The life and health of human beings and the balance of the environment are more important than all metals.²⁴⁴ In Honduras, the National Pastoral Assembly of the Catholic Church recognizes that the protection of the common home requires "eliminating the corruption and impunity of businessmen and individuals in the use and abuse of natural resources under the cover of bad public policies and in the haphazard application of environmental laws."²⁴⁵

In this urgent search for another way of social, political and environmental coexistence in Honduras, what is the role of researchers and research in environmental health and human security? Scientific research often has several purposes. In our case, the international project entitled "Mining, Development and Justice in Honduras: A Community-Based Initiative for Education and Advocacy" was conceived for the purpose of doing action research, that is, gathering rigorous evidence that could be used as an instrument for social and political change for the promotion of the health and well-being of the community.

The report of the study “Mining, environmental health and human security: evaluation results of the quality of life and water in Abisinia (Colón), Nueva Esperanza (Atlántida), and San Francisco Locomapa (Yoro), and the responsibility of the state in Honduras” reflects the commitment of researchers from the Saint Louis University College for Public Health and Social Justice and the Honduran Reflection, Research and Communication Team (ERIC) to make visible and evident the vulnerability and human insecurity experienced by communities such as Abisinia, Nueva Esperanza and San Francisco Locomapa in the face of mining expansion, and the serious failure of the Honduran state captured by extractive elites and empowered by extractive institutions to fulfill their responsibility to ensure human security for all Hondurans. We hope that this report contributes to the search for an alternative way of social, political and environmental coexistence that makes living with dignity in a healthy environment a reality for all Hondurans, especially the most vulnerable.



The catholic church in Abisinia, July 30th, 2015.

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**Fernando Serrano, San Francisco Locomapa, August 6, 2015.
All photos in this report by Fernando Serrano.**