YOUTH ACTION LEAD LIBERIA

BASELINE ASSESSMENT REPORT

(Zorzor & Salayea District)

Project Title:

EMPOWERING COMMUNITIES FOR CLIMATE JUSTICE THROUGH LEGAL STRATEGIES FOR SAFE ARTISANAL MINING PRACTICES IN LIBERIA

By

Monitoring and Evaluation Department

Youth Action Lead Liberia (YALL)

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EXECUTIVE SUMMARY

This baseline and needs assessment was conducted to examine the environmental, social, and economic impacts of artisanal and small-scale mining (ASM) in selected communities in Zorzor and Salayea Districts, Lofa County. The assessment was implemented by Youth Action Lead Liberia to generate evidence that will inform project design, implementation, and monitoring.

A mixed-methods approach was used, combining quantitative household and miner surveys with qualitative focus group discussions (FGDs). A total of 75 households and 22 miners participated in the study, alongside community leaders including town chiefs, youth representatives, women leaders, and elders. Data were collected using structured questionnaires and analyzed using Excel and SPSS, while qualitative data were analyzed thematically.

The findings reveal significant environmental degradation associated with mining activities. A large majority of households (84.0%) reported worsening water quality, while 53.3% indicated that farmland has been affected, and 44.0% reported actual loss of farmland. Additionally, 58.7% of respondents noted the presence of abandoned mining pits, reflecting poor environmental management and few site restoration practices.

Environmental and climate awareness remains low. Although 64.0% of respondents have heard about climate change, only 12.0% reported receiving environmental education in the past two years. Among miners, environmental awareness is also low (40.9%), and none reported receiving formal environmental training.

Legal awareness is critically low across both households and miners. Only 22.7% of households are aware of their land rights, and just 21.3% know where to report environmental damage. Among miners, awareness of mining laws is nonexistent (0.0%), and no respondents reported incidents or environmental concerns to authorities, highlighting weak accountability systems.

Mining safety conditions are poor and pose serious risks. Only 13.6% of miners reported consistently using personal protective equipment (PPE), none have received safety training, and 54.5% reported experiencing mining-related injuries. Access to first aid services is also limited (27.3%), indicating a high-risk working environment.

The study also found weak community participation in mining governance. Less than half of households (42.7%) reported attending community meetings on mining issues, and the involvement of women and youth in decision-making remains limited. While some communities reported the existence of agreements with mining actors, enforcement is inconsistent.

Despite these challenges, mining remains a key source of livelihood, with 72.7% of miners relying on it as their main income. However, limited alternative livelihood opportunities increase vulnerability. At the same time, both households and miners expressed strong demand for support, particularly in legal rights education, environmental awareness, and mining safety training.

Based on these findings, the assessment recommends a comprehensive and integrated intervention approach. Priority actions include strengthening environmental and climate education, enhancing legal awareness and community rights, providing mining safety training, promoting environmentally responsible mining practices, improving community participation in governance, and supporting livelihood diversification.

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INTRODUCTION

1.1 Background

Mining activities have increasingly become a major livelihood source in rural communities in Lofa County, particularly in Zorzor District and Salayea District. While artisanal and small-scale mining (ASM) provides income opportunities for many households, it has also contributed to significant environmental degradation, including water pollution, farmland destruction, and the creation of abandoned mining pits.

In addition to environmental concerns, mining activities have raised issues related to community rights, governance, and equitable benefit-sharing. Many communities lack adequate awareness of their legal rights and mechanisms for reporting environmental damage. Furthermore, the absence of proper environmental management practices has increased risks to public health and safety.

To address these challenges, Youth Action Lead Liberia is implementing a project focused on climate change awareness, legal empowerment, advocacy, and the promotion of safe mining practices in mining-affected communities.

This baseline and needs assessment was conducted to generate evidence on the current situation, identify key challenges, and inform the design and implementation of targeted interventions.

1.2. Objectives of the Assessment

1.2.1 Overall Objective

To assess the environmental, social, and economic impacts of mining activities and identify priority needs in selected mining-affected communities.

1.2.2 Specific Objectives

i. To assess the environmental impacts of mining on farmland, water sources, and community safety
ii. To evaluate the level of awareness of climate change among community members
iii. To assess community knowledge of legal rights and mechanisms for reporting environmental damage
iv. To examine community participation in mining-related decision-making
v. To identify priority needs and areas for intervention, including awareness, advocacy, and livelihood support

METHODOLOGY

2.1 Study Area

The assessment was conducted in four mining-affected communities located in Zorzor District and Salayea District in Lofa County. These communities are: Kiliwu and Zolowo in Zorzor District and Kponwansanyea- Kpeteyea and Kpayaquelleh New Town in Salayea District. For clear view of these communities, please see Annex 6 below.

These communities were selected because artisanal and small-scale mining (ASM), particularly gold mining, is widely practiced in the area. Mining serves as an important source of livelihood for many households; however, it has also raised concerns related to environmental degradation, unsafe mining practices, and community health risks.

The selected communities are predominantly rural, where mining activities often occur near rivers, farmland, and residential settlements. The study aimed to assess how these activities affect both miners and surrounding communities.

2.2 Study Design

The assessment adopted a mixed-methods approach, combining both quantitative and qualitative data collection methods.

Quantitative data were collected through structured surveys administered to households and miners, while qualitative data were gathered through focus group discussions (FGDs) with community leaders and mining representatives.

This approach enabled the study to generate measurable data on mining practices while also capturing in-depth insights into community experiences, perceptions, and concerns related to artisanal mining activities.

2.3 Data Collection Methods

Multiple data collection methods were used to gather information from different stakeholders within the mining communities.

Household Surveys

Structured questionnaires were administered to selected households to collect information on:

- Environmental impacts of mining activities
- Community health concerns
- Awareness of mining regulations
- Perceptions of mining impacts on livelihoods and climate

Miner Surveys

Interviews were conducted with miners to understand:

- Mining methods and practices
- Safety measures used during mining
- Environmental awareness
- Use of mercury or other chemicals

- Waste management practices

Focus Group Discussions (FGDs)

Focus group discussions were conducted with key community representatives to explore broader community perspectives on mining activities and their impacts.

Participants included:

- Town Chief
- Youth Chairperson
- Women Leader
- Community Elder

These discussions provided qualitative insights into community governance, environmental challenges, and the social impacts of mining.

2.4 Sampling Method

Different sampling techniques were used for the various respondent groups.

Households were selected using a simple random sampling approach within each community to ensure fair representation.

Miners were selected using purposive sampling, targeting individuals actively engaged in mining activities.

Participants for the focus group discussions were also purposively selected based on their leadership roles and knowledge of community issues.

2.5 Sample Size

The study included respondents from households, miners, and community representatives across the selected communities.

Household Surveys

A total of 75 households were surveyed to collect information on environmental impacts, community health concerns, and perceptions of mining activities.

Miner Interviews

A total of 22 miners were interviewed to assess mining practices, safety conditions, environmental awareness, and the use of hazardous substances such as mercury.

Focus Group Discussions

Focus group discussions were conducted in selected communities, including Kiliwu, Zolowo, and Kpeteyea, involving key community leaders such as:

- Town Chief
- Youth Chairperson
- Women Leader
- Community Elder

These discussions provided deeper insights into community experiences, governance issues, and local perspectives on artisanal and small-scale mining.

2.6 Ethical Considerations

Participation in the assessment was voluntary. Respondents were informed about the purpose of the study before the interviews began.

All information collected was treated with confidentiality and used solely for research and project purposes. Participants had the right to decline answering any question or withdraw from the interview at any time without any consequences.

2.7 Data Collection Tools

Data were collected using mobile-based questionnaires (KoboToolbox) installed on smartphones. This approach enabled enumerators to record responses accurately and minimize data entry errors.

The questionnaire included sections covering:

- Demographic information
- Mining practices
- Environmental impacts
- Community health concerns
- Safety practices in mining
- Awareness of mining regulations and climate change

2.8 Data Analysis

Quantitative data were analyzed using excel and SPSS to generate frequencies and percentages. Qualitative data from FGDs were analyzed thematically to identify key patterns and insights related to environmental impacts, governance, and community needs.

RESULTS

3.1 Household Result

Table 3.1.1: Socio-Demographic Characteristics of Respondents (n = 75)

Variable	Category	Frequency	Percentage (%)
Sex	Male	31	41.3
	Female	44	58.7
Age group	18–24	8	10.7
	25–34	21	28.0
	35–44	19	25.3
	45–54	18	24.0
	55+	9	12.0
Occupation	Farmer	50	66.7
	Mining	3	4.0
	Petty Trade	11	14.7
	Civil Servant	1	1.3
	Student	2	2.7
	Unemployed	4	5.3
	Other	4	5.3
Duration in community	<5 years	13	17.3
	5–10 years	5	6.7
	11–20 years	5	6.7
	>20 years	52	69.3

The socio-demographic characteristics show that the majority of respondents were female (58.7%), while males accounted for 41.3%. Most respondents were within the economically active age groups of 25–34 years (28.0%) and 35–44 years (25.3%). Farming was the dominant occupation, representing 66.7% of respondents. Additionally, 69.3% of respondents had lived in their communities for more than 20 years.

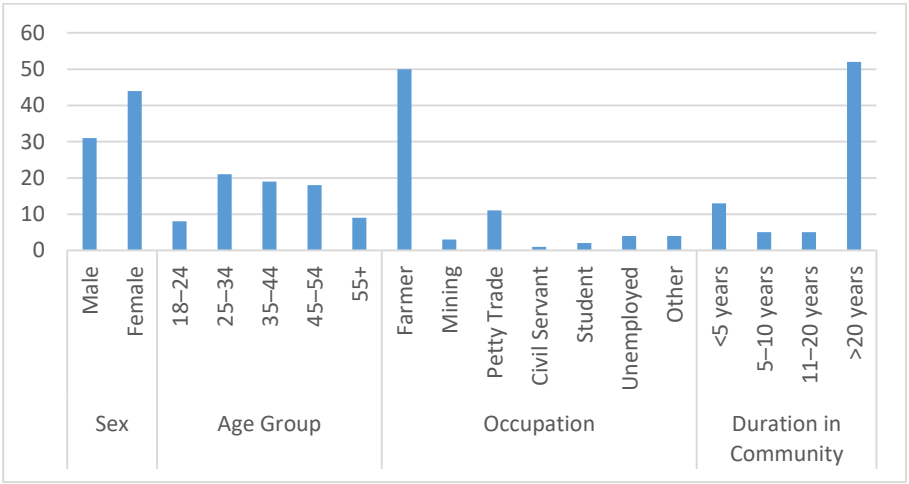

Figure 3.1.1: Socio-Demographic Characteristics of Respondents (n = 75)

Table 3.1.2: Household Involvement in Mining (n = 75)

Response	Frequency	Percentage (%)
Yes	31	41.3
No	44	58.7
Total	75	100

Table 3.1.2 indicates that 41.3% of households reported having at least one member involved in mining activities, while 58.7% had no household members engaged in mining.

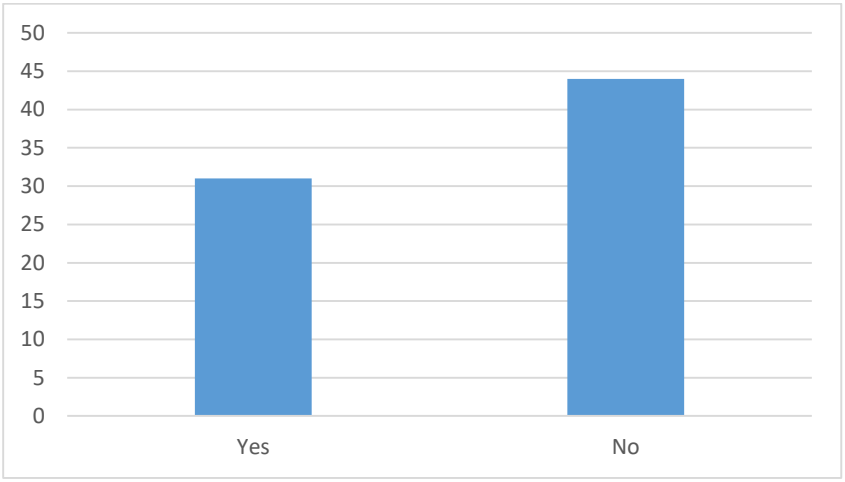

Figure 3.1.2: Household Involvement in Mining (n = 75)

Table 3.1.3: Environmental Impacts of Mining (n = 75)

Indicator	Yes n (%)	No n (%)	Not sure n (%)
Mining affected farmland	40 (53.3)	28 (37.3)	7 (9.3)
Household lost farmland	33 (44.0)	7 (9.3)	—
Water quality worsened	63 (84.0)	7 (9.3)	5 (6.7)
Presence of abandoned pits	44 (58.7)	18 (24.0)	13 (17.3)
Increased flooding/erosion	26 (34.7)	45 (60.0)	4 (5.3)

The findings reveal substantial environmental impacts from mining activities. More than half of respondents (53.3%) reported that mining affected farmland, and 44.0% indicated that their households had lost farmland due to mining. A large majority (84.0%) stated that water quality had worsened. Additionally, 58.7% reported the presence of abandoned mining pits, and 34.7% observed increased flooding or soil erosion. These results demonstrate significant environmental degradation linked to mining activities.

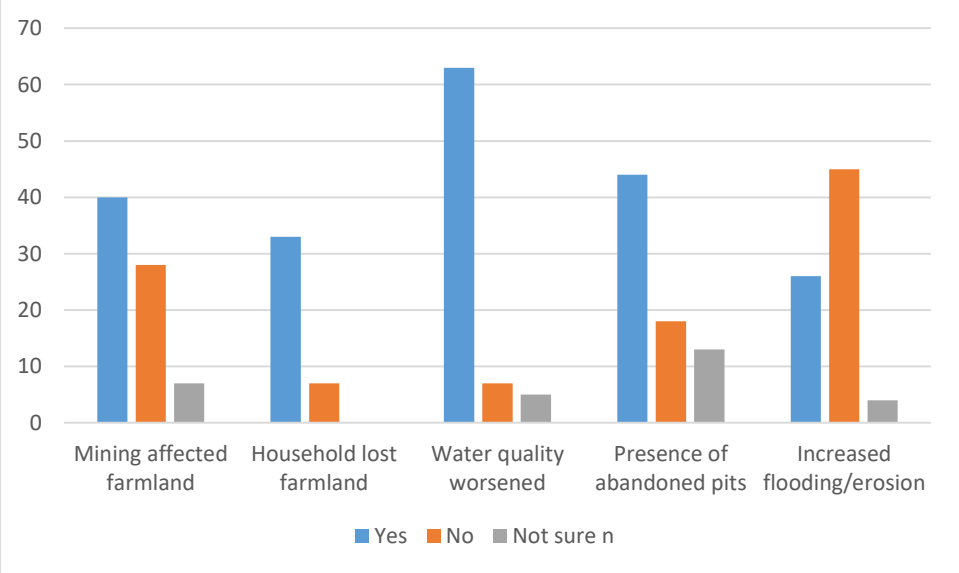

Figure 3.1.3: Environmental Impacts of Mining (n = 75)

Table 3.1.4: Mining Site Safety and Restoration Practices (n = 75)

Indicator	Category	Frequency	Percentage (%)
Pits filled after mining	Always	2	2.7
	Sometimes	19	25.3
	Never	37	49.3
	Not sure	17	22.6

The results show poor environmental restoration practices. Only 2.7% of respondents indicated that mining pits are always filled after mining, while 49.3% reported that pits are never filled.

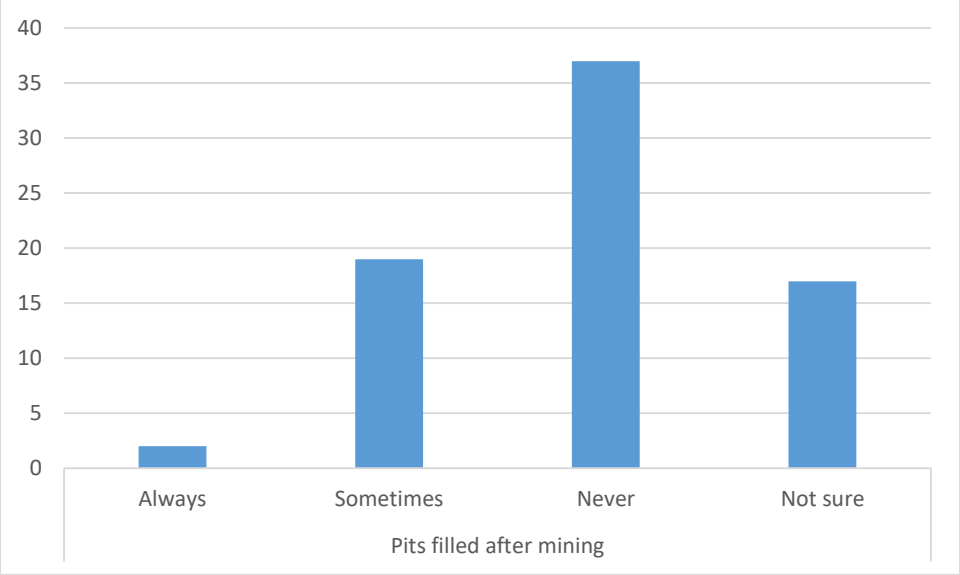

Figure 3.1.4: Mining Site Safety and Restoration Practices (n = 75)

Table 3.1.5: Climate Change Awareness (n = 75)

Indicator	Yes n (%)	No n (%)
Heard about climate change	48 (64.0)	27 (36.0)
Received environmental education	9 (12.0)	66 (88.0)

Although 64.0% of respondents reported that they had heard about climate change, only 12.0% had received environmental education in the past two years.

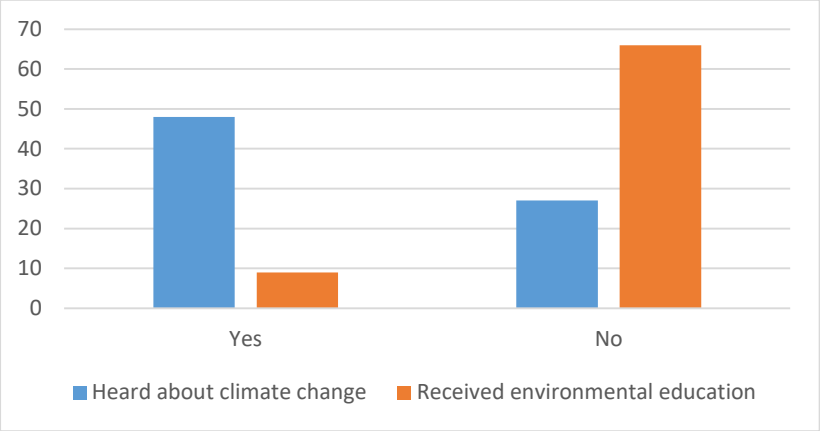

Figure 3.1.5: Climate Change Awareness (n = 75)

Table 3.1.6: Legal Awareness and Community Rights (n = 75)

Indicator	Yes n (%)	No n (%)	Not sure n (%)
Community agreement with miners	55 (73.3)	8 (10.7)	12 (16.0)
Awareness of land rights	17 (22.7)	58 (77.3)	—
Know where to report damage	16 (21.3)	59 (78.7)	—

The findings indicate low levels of legal awareness. While 73.3% of respondents reported that there is a community agreement with miners, only 22.7% were aware of their community land rights. Additionally, 78.7% did not know where to report environmental damage.

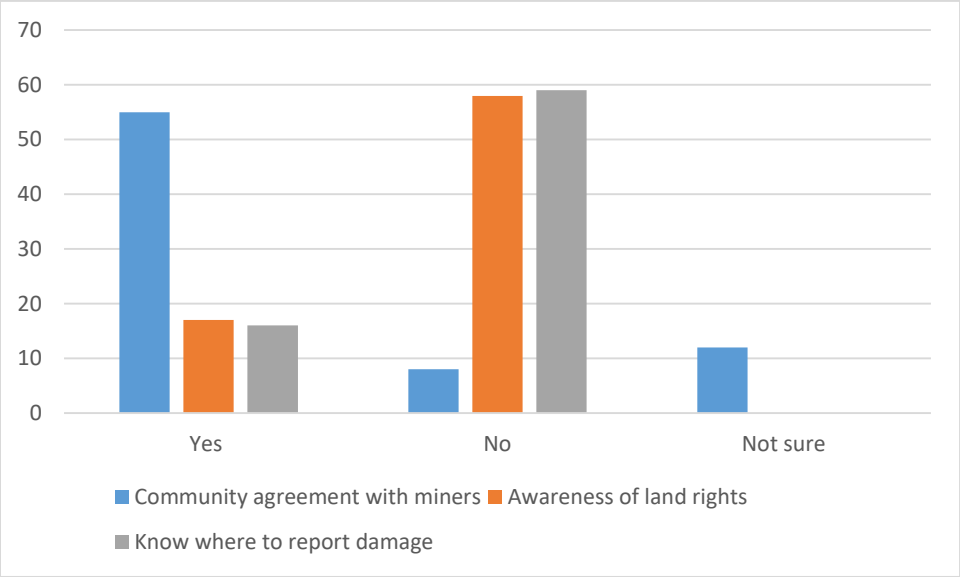

Figure 3.1.6: Legal Awareness and Community Rights (n = 75)

Table 3.1.7: Community Participation in Mining Governance (n = 75)

Indicator	Category	Frequency	Percentage (%)
Attended community meeting	Yes	32	42.7
	No	43	57.3
Women participation	Very involved	22	29.3
	Somewhat involved	29	38.7
	Rarely involved	2	2.7
	Not involved	2	2.7
	Not sure	20	26.7
Youth participation	Very involved	22	29.3
	Somewhat involved	27	36.0
	Rarely involved	4	5.3
	Not involved	2	2.7
	Not sure	20	26.7

Community participation in mining governance are stated in the table and figure. Only 42.7% of respondents reported attending community meetings on mining issues. Women and youth involvements were 29.3% each, with 38.7% and 36% respondents indicating women and youth were only somewhat involved.

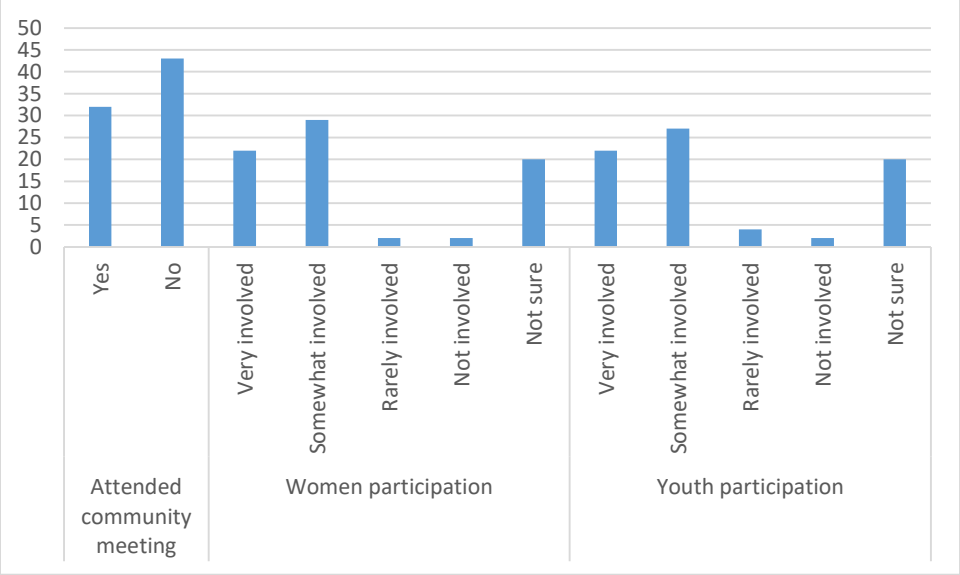

Figure 3.1.7: Community Participation in Mining Governance (n = 75)

Table 3.1.8: Problems Caused by Mining (n = 75)

Problem	Yes	Percentage (%)
Water pollution	67	89.3
Farmland loss	31	41.3
Unsafe mining pits	17	22.7

Water pollution was identified as the most common problem caused by mining, reported by 89.3% of respondents. Farmland loss was reported by 41.3%, while 22.7% highlighted unsafe mining pits.

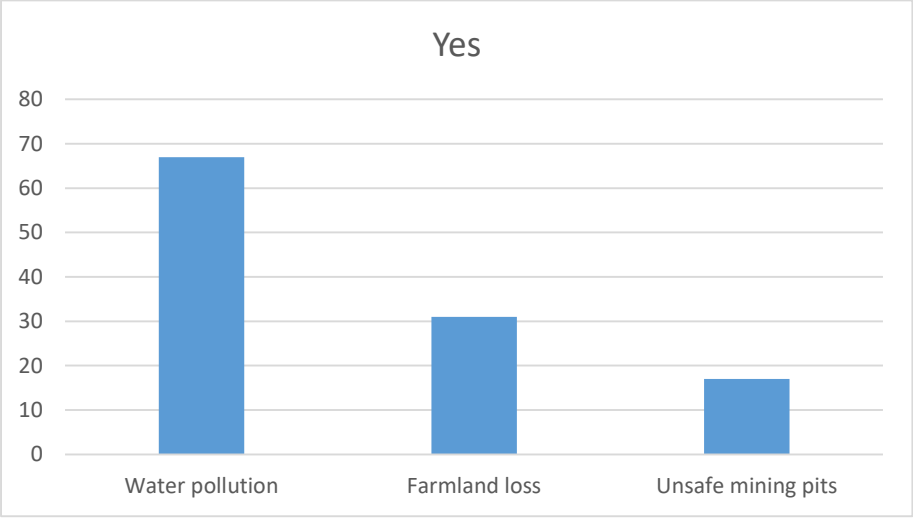

Figure 3.1.8: Problems Caused by Mining (n = 75)

Table 3.1.9: Priority Support Needs Identified (n = 75)

Support needed	Yes	Percentage (%)
Environmental awareness training	54	72.0
Legal rights education	58	77.3

Respondents identified key priority needs for support. Legal rights education was requested by 77.3% of households, while 72.0% requested environmental awareness training.

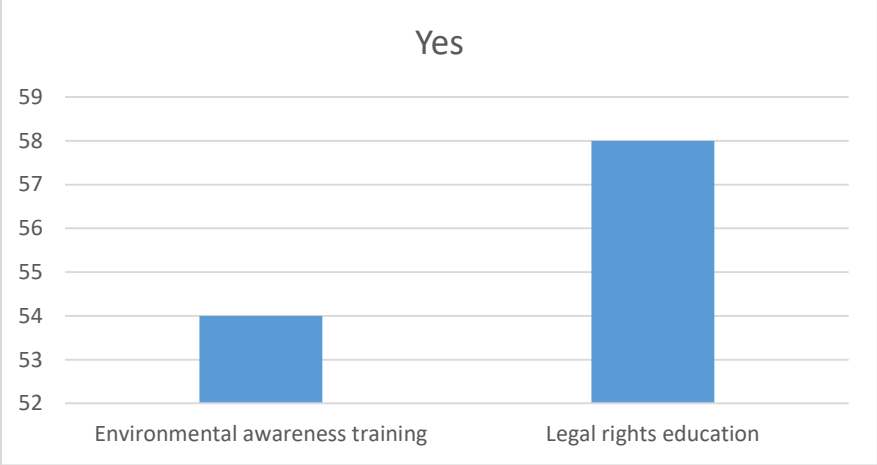

Figure 3.1.9: Priority Support Needs Identified (n = 75)

3.2 Miner Result

Table 3.2.1: Socio-Demographic Characteristics of Miners (n = 22)

Variable	Category	Frequency	Percentage (%)
Sex	Male	15	68.2
	Female	7	31.8
Age group	18–24	5	22.7
	25–34	14	63.6
	35–44	3	13.6
Duration in mining	<1 year	3	13.6
	1–3 years	9	40.9
	>6 years	10	45.5
Type of mining	Artisanal/small-scale	19	86.4
	Semi-mechanized	3	13.6
Main source of income	Yes	16	72.7
	No	6	27.3

Most miners were male (68.2%) and within the 25–34 age group (63.6%). Nearly half (45.5%) had more than six years of mining experience. Artisanal and small-scale mining was the dominant practice (86.4%), and 72.7% reported mining as their main source of income, indicating strong dependence on mining for livelihoods.

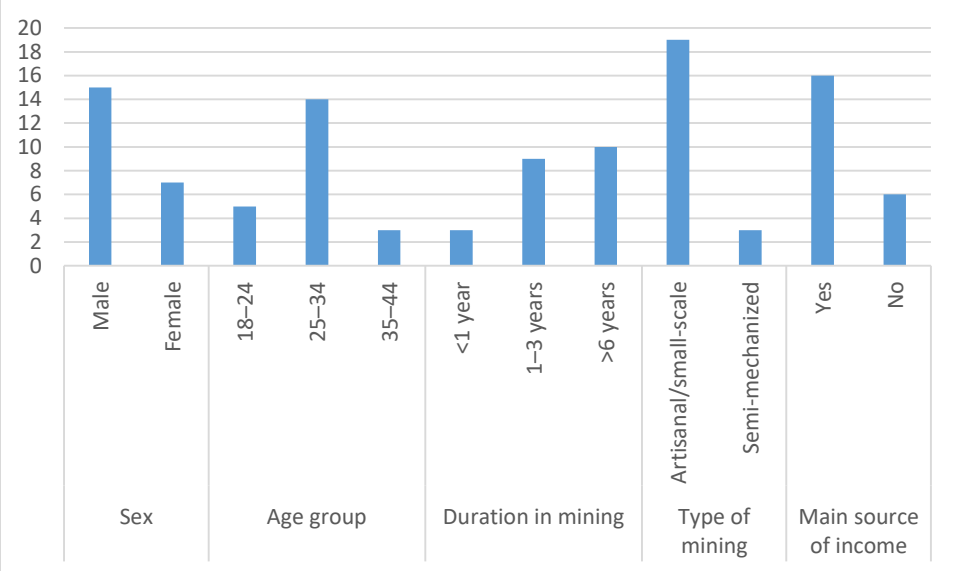

Figure 3.2.1: Socio-Demographic Characteristics of Miners (n = 22)

Table 3.2.2: Mining Safety Practices (n = 22)

Indicator	Category	Frequency	Percentage (%)
Use of ppe	Always	3	13.6
	Sometimes	6	27.3
	Never	13	59.1
Received safety training	Yes	0	0.0
	No	22	100.0
Mining injuries	Self injured	12	54.5
	Co-worker injured	5	22.7
	No injuries	5	22.7
First aid availability	Yes	6	27.3
	No	16	72.7

Safety practices among miners were limited. Only 13.6% reported always using personal protective equipment, while 59.1% never used PPE. None of the miners had received safety training, and 54.5% reported being injured during mining. Additionally, 72.7% indicated lack of access to first aid services.

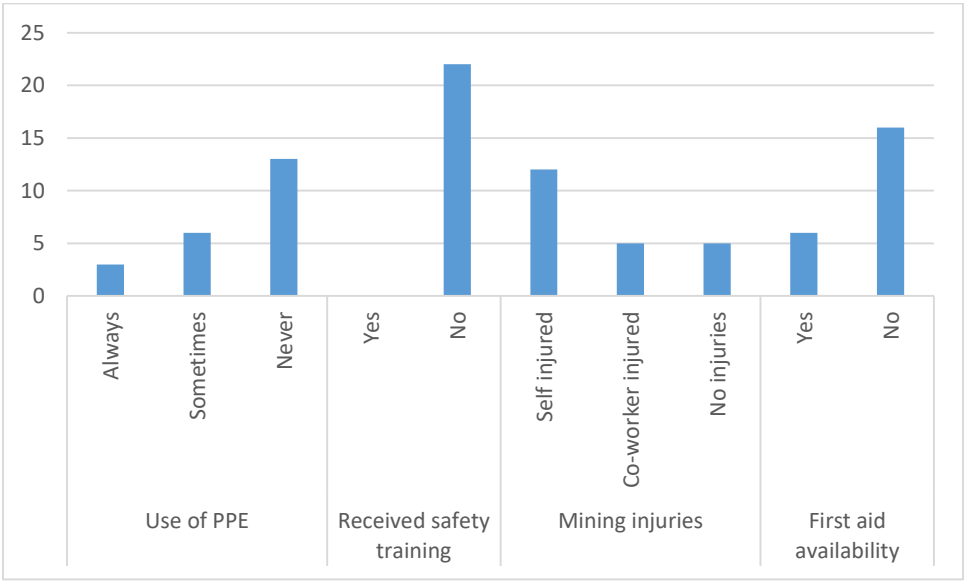

Figure 3.2.2: Mining Safety Practices (n = 22)

Table 3.2.3: Environmental Practices among Miners (n = 22)

Indicator	Category	Frequency	Percentage (%)
Backfilling pits	Always	3	13.6
	Sometimes	8	36.4
	Never	11	50.0
Waste management	Stored safely	3	13.6
	Dumped near water	11	50.0
	Left uncovered	3	13.6
	Mixed practices	5	22.7
Environmental awareness	Yes	9	40.9
	No	13	59.1
Environmental training	Yes	0	0.0
	No	22	100.0

According to the data, half of the miners (50.0%) reported never filling pits after mining, and 50.0% dumped mining waste near water sources. Only 40.9% were aware of environmental impacts, and none had received environmental protection training.

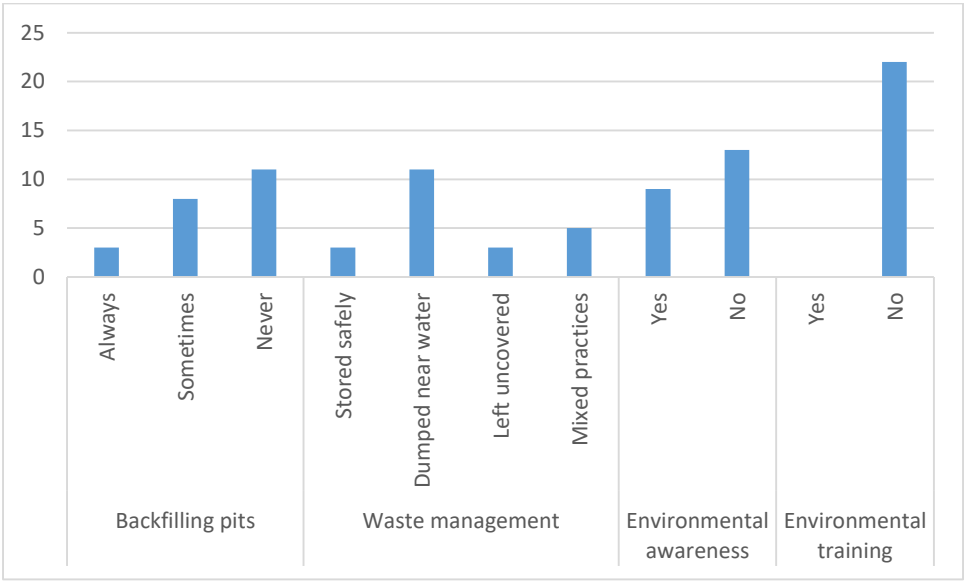

Figure 3.2.3: Environmental Practices among Miners (n = 22)

Table 3.2.4: Use of Mercury and Hazardous Practices (n = 22)

Response	Frequency	Percentage (%)
Yes, frequently	18	81.8
Yes, occasionally	2	9.1
No	2	9.1
Total	22	100

A large majority of miners (81.8%) reported frequent use of mercury during mining activities. This indicates high exposure to hazardous chemicals and potential environmental and health risks.

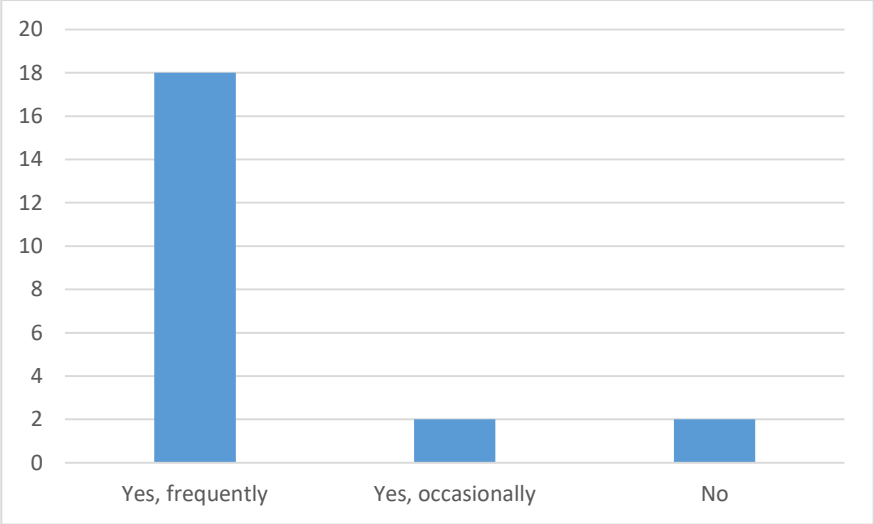

Figure 3.2.4: Use of Mercury and Hazardous Practices (n = 22)

Table 3.2.5: Legal Awareness and Community Engagement (n = 22)

Indicator	Yes n (%)	No n (%)
Awareness of mining laws	0 (0.0)	22 (100.0)
Community agreement	11 (50.0)	11 (50.0)
Reported accidents	0 (0.0)	22 (100.0)
Attend meetings	9 (40.9)	13 (59.1)

Legal awareness among miners was extremely low, with none reporting knowledge of mining regulations. 50% of the miners indicated the existence of community agreements, but none had reported accidents or environmental damage. Participation in community meetings was also 59%.

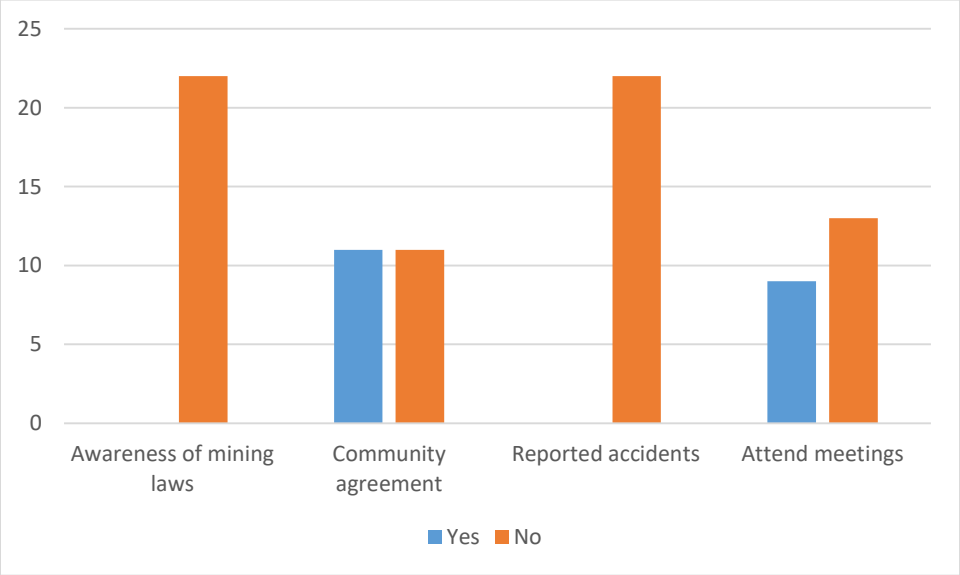

Figure 3.2.5: Legal Awareness and Community Engagement (n = 22)

Table 3.2.6: Livelihood and Training Needs of Miners (n = 22)

Indicator	Yes	Percentage (%)
Alternative income source	6	27.3
Need safe mining training	15	68.2
Need environmental training	15	68.2

Most miners (72.7%) relied solely on mining for income. A majority (68.2%) expressed the need for safety and environmental protection training, indicating demand for capacity-building interventions.

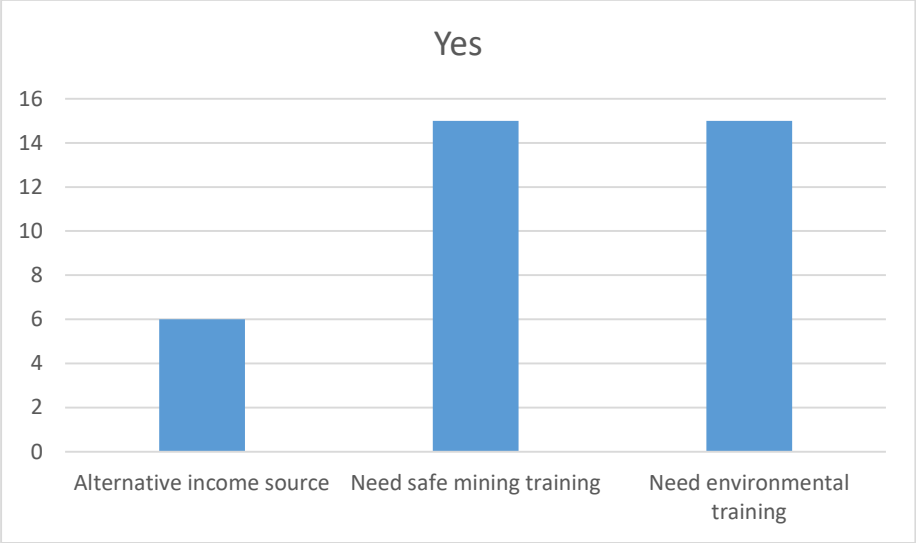

Table 3.2.6: Livelihood and Training Needs of Miners (n = 22)

3.3 Focus Group Discussion Findings

Focus group discussions were conducted in three mining-affected communities: Kiliwu, Zolowo, and Kpeteyea. The discussions explored community experiences with mining activities, environmental impacts, governance, and priority needs.

Environmental Impacts of Mining

Participants across all three communities reported negative environmental effects of mining activities. In Kiliwu, respondents indicated that mining companies and artisanal and small-scale miners were causing water pollution, damaging farmlands, and blocking farm roads. Community members also noted that artisanal miners were digging open pits in the bush and leaving them uncovered, creating safety risks.

Similarly, participants in Zolowo reported that artisanal miners had created many open pits, and mining activities were contributing to dirty water sources. In Kpeteyea, respondents explained that previous mining activities left excavated gravel sites, which are now being reused by artisanal miners using machines to wash gravel.

Mining Agreements and Community Benefits

Community members in Kiliwu stated that although a mining company operates in their area, it sometimes fails to fully meet the terms of the agreement. However, they reported that decisions regarding mining benefits are occasionally discussed openly in community meetings.

In Zolowo, participants noted that a mining company is currently conducting prospecting activities, and a Memorandum of Understanding (MOU) will be signed after the three-year prospecting period. They also indicated that artisanal miners operating in the area do not provide benefits to the community.

In Kpeteyea, respondents stated that a company previously operated in the area but left after failing to meet the MOU requirements, leaving behind gravel pits.

Climate Change Awareness

Participants in Zolowo indicated that they had heard about climate change through radio programs and observed changes in weather patterns. However, overall awareness across communities appeared low, with participants expressing the need for more information and education.

Community Needs and Priority Actions

Across all communities, participants emphasized the need for climate change awareness and legal empowerment training. Community members expressed interest in learning about their rights, safe mining practices, and environmental protection measures. They also emphasized the need for stronger monitoring of artisanal miners to ensure pits are covered and environmental damage is minimized.

4. Discussion of Findings

4.1 Environmental Impacts of Mining

The findings demonstrate that mining activities are significantly contributing to environmental degradation across the study communities. A large proportion of households reported worsening water quality, loss of farmland, and the presence of abandoned mining pits. Water pollution emerged as the most critical issue, affecting the majority of respondents and confirmed by community narratives during focus group discussions.

The persistence of open pits and few restoration practices indicates weak environmental management and poor compliance with responsible mining standards. Evidence from miner responses further supports this, as many reported unsafe waste disposal practices and frequent use of mercury. These patterns shows a cycle of environmental damage driven by low awareness, weak regulation, and unsustainable mining practices, posing risks to both livelihoods and public health.

4.2 Climate Change Awareness and Environmental Knowledge

While a moderate number of respondents reported having heard about climate change, only a small proportion had received any form of environmental education. This suggests that awareness remains superficial and is not translated into informed practices.

The low knowledge is reflected in continued environmental degradation and poor mining practices. Insights from focus group discussions indicate that although communities observe changes in weather patterns, there is little understanding of the connection between mining activities and broader environmental changes. This shows the need for targeted awareness interventions that move beyond basic knowledge to practical understanding and behavior change.

4.3 Legal Awareness and Community Rights

The assessment reveals very low levels of legal awareness among both households and miners. Although some households acknowledged the existence of agreements with mining actors, most respondents lacked knowledge of land rights and reporting mechanisms for environmental damage. Among miners, awareness of mining laws was entirely absent, and no cases of formal reporting of accidents or environmental issues were identified.

This lack of legal knowledge limits the ability of communities to hold mining actors accountable and weakens their capacity to negotiate fair and enforceable agreements. It also contributes to underreporting of environmental damage and safety incidents, indicating gaps in both awareness and access to governance systems.

4.4 Mining Safety Practices and Occupational Risks

The findings show serious deficiencies in occupational safety within mining activities. The majority of miners reported not using personal protective equipment, and none had received formal safety training. At the same time, a significant proportion reported experiencing injuries, while access to first aid services remained low.

These conditions point to a high-risk working environment where unsafe practices are normalized. The absence of training and protective measures increases vulnerability among miners and has broader implications for household welfare, particularly given the dependence on mining as a primary income source.

4.5 Community Participation and Governance

Community participation in mining governance appears to be low and inconsistent. Less than half of respondents reported attending meetings related to mining, and the involvement of women and youth was generally moderate to low. While some structures for engagement exist, decision-making processes are not fully inclusive.

Findings from focus group discussions also suggest that agreements with mining actors are not consistently enforced, with some companies failing to meet their obligations. This reflects weaknesses in local governance systems and low community capacity to monitor and enforce compliance.

4.6 Livelihood Dependence and Economic Vulnerability

Mining remains a key source of income for many respondents, particularly among miners who largely depend on it as their primary livelihood. However, the limited availability of alternative income sources increases vulnerability, especially in the context of unsafe working conditions and environmental degradation.

At the same time, there is a clear demand for alternative livelihood opportunities and training support. This indicates that while communities rely heavily on mining, they are open to diversifying their income if viable options are provided.

4.7 Implications for Programming

The overall findings point to interconnected challenges involving environmental degradation, low awareness, weak governance, and economic dependence on mining. The consistency of these issues across household, miner, and community-level data suggests the need for integrated interventions.

Addressing these challenges will require a comprehensive approach that combines environmental education, legal empowerment, safety training, and livelihood support, alongside efforts to strengthen community participation and accountability mechanisms.

5. Key Findings

The assessment revealed that mining activities are causing widespread environmental degradation in the targeted communities. Water pollution was identified as the most significant issue, with the majority of households reporting deterioration in water quality. In addition, a substantial number of respondents indicated loss of farmland and the presence of abandoned mining pits, reflecting poor environmental management and weak restoration practices.

The findings also show that environmental awareness remains limited. Although some community members have heard about climate change, only a small proportion have received formal environmental education. This gap is reflected in continued unsafe environmental practices among both households and miners.

Legal awareness is critically low across all groups. Most households are unaware of their land rights and lack knowledge of where to report environmental damage. Among miners, awareness of mining laws and regulations is nonexistent, and there is no evidence of formal reporting of accidents or environmental concerns. This significantly limits community capacity to demand accountability.

Mining safety practices are inadequate and pose serious risks. The majority of miners do not use personal protective equipment, none have received safety training, and more than half reported experiencing injuries. Access to first aid services is also limited, indicating a high-risk working environment.

Community participation in mining governance is weak. Less than half of respondents reported attending community meetings on mining issues, and the involvement of women and youth in decision-making is moderate to low. Existing community agreements with mining actors are not consistently enforced, reflecting governance challenges.

The assessment further shows a strong dependence on mining as a primary source of livelihood, particularly among miners. However, there is limited income diversification, increasing vulnerability. At the same time, both households and miners expressed a clear need for support, particularly in the areas of legal rights education, environmental awareness, and mining safety training.

Overall, the findings show a combination of environmental, social, and governance challenges that require urgent and coordinated intervention.

6. Conclusion

The baseline assessment shows that artisanal and small-scale mining remains a major source of livelihood in the targeted communities, but it is associated with significant environmental, social, and governance challenges. Mining activities are contributing to widespread environmental degradation, particularly water pollution, farmland loss, and the creation of unsafe abandoned pits.

At the same time, the study reveals low levels of environmental and climate awareness, limited knowledge of legal rights, and weak community capacity to engage in or influence mining-related decision-making. Among miners, unsafe practices, lack of training, and high exposure to occupational risks further compound the situation.

The findings also show that while communities depend heavily on mining for income, there is a clear demand for knowledge, skills, and alternative livelihood opportunities. This presents an opportunity for targeted interventions that can both reduce harm and improve community resilience.

Overall, the current situation underscores the need for integrated and context-specific interventions that address environmental protection, legal empowerment, safety practices, and livelihood diversification. Without such efforts, the negative impacts of mining are likely to persist and further undermine community well-being and sustainability.

7. Recommendations

i. Environmental Awareness and Climate Education: Strengthen community education on environmental protection and climate change using practical, locally adapted approaches to promote behavior change.
ii. Legal Empowerment and Rights Awareness: Improve community understanding of land rights, mining laws, and reporting mechanisms to enhance accountability and protect community interests.
iii. Mining Safety Training and Support: Provide training on safe mining practices, use of protective equipment, and basic first aid to reduce injuries and improve working conditions.
iv. Promotion of Environmentally Responsible Mining Practices: Encourage safer mining methods, proper waste management, reduced mercury use, and rehabilitation of mining sites to minimize environmental damage.
v. Strengthening Community Participation and Governance: Enhance inclusive decision-making by increasing the involvement of women and youth and building the capacity of community leadership structures.
vi. Livelihood Diversification and Economic Support: Support alternative income-generating activities through skills training and financial support to reduce dependence on mining.
vii. Integrated Program Approach: Implement a coordinated strategy that combines environmental, legal, safety, and economic interventions for sustainable impact.

Annex- 1: Household Baseline Indicators Table

No.	Indicator Category	Indicator Description	Source Question	Baseline (%)	Midline (%)	Final (%)
1	Environmental Impact	Households reporting farmland affected by mining	Q6	**53.3%**	—	—
2	Environmental Impact	Households that lost farmland due to mining	Q7	**44.0%**	—	—
3	Environmental Impact	Households reporting worsened water quality	Q8	**84.0%**	—	—
4	Environmental Impact	Households reporting presence of abandoned mining pits	Q9	**58.7%**	—	—
5	Environmental Impact	Households reporting increased flooding or erosion	Q10	**34.7%**	—	—
6	Climate Awareness	Community members aware of climate change	Q13	**64.0%**	—	—
7	Climate Awareness	Households receiving environmental education (past 2 years)	Q15	**12.0%**	—	—
8	Legal Awareness	Households aware of community land rights	Q17	**22.7%**	—	—
9	Legal Awareness	Households who know where to report environmental damage	Q18	**21.3%**	—	—
10	Legal Awareness	Households aware of mining agreements in community	Q16	**73.3%**	—	—
11	Governance & Participation	Women reported as “very involved” in decision-making	Q22	**29.3%**	—	—
12	Governance & Participation	Youth reported as “very involved” in decision-making	Q23	**29.3%**	—	—

Annex- 2: Miner Baseline Indicators

No.	Indicator Category	Indicator Description	Source Question	Baseline (%)	Midline (%)	Final (%)
1	Safety Practices	Miners who always use PPE (helmets, gloves, boots)	B6	**13.6%**	—	—
2	Safety Practices	Miners who received formal safety training	B7	**0.0%**	—	—
3	Safety Practices	Miners reporting mining-related injuries	B8	**54.5%**	—	—
4	Safety Practices	Miners with access to first aid services	B9	**27.3%**	—	—
5	Environmental Practices	Miners who always fill/cover pits after mining	C11	**13.6%**	—	—
6	Environmental Practices	Miners practicing safe waste management (stored safely)	C12	**13.6%**	—	—
7	Environmental Practices	Miners aware of environmental impacts of mining	C13	**40.9%**	—	—
8	Environmental Practices	Miners who received environmental training	C14	**0.0%**	—	—
9	Environmental Practices	Miners who frequently use mercury	C15	**81.8%**	—	—
10	Legal Awareness	Miners aware of mining laws and regulations	D16	**0.0%**	—	—
11	Legal Awareness	Miners aware of community agreements/permits	D17	**50.0%**	—	—
12	Governance & Participation	Miners attending community meetings on mining	D20	**40.9%**	—	—
13	Accountability & Reporting	Miners who reported accidents/environmental issues	D18	**0.0%**	—	—
14	Livelihoods	Miners with alternative income sources	E21	**27.3%**	—	—

ANNEX 3: HOUSEHOLD BASELINE & NEEDS ASSESSMENT QUESTIONNAIRE

i. Location

☐ Town 1

☐ Town 2

☐ Town 3

☐ Town 4

☐ Town 4

☐ Town 5

☐ Town 6

☐ Town 7

SECTION A: Socio-Demographic Information

Q1. Sex of respondent

☐ Male

☐ Female

Q2. Age group

☐ 18–24

☐ 25–34

☐ 35–44

☐ 45–54

☐ 55+

Q3. Main occupation

☐ Farming

☐ Mining

☐ Petty trade

☐ Civil servant

☐ Student

☐ Unemployed

☐ Other (Specify) _____

Q4. How long have you lived in this community?

☐ Less than 5 years

☐ 5–10 years

☐ 11–20 years

☐ More than 20 years

Q5. Is anyone in your household involved in mining?

☐ Yes

☐ No

SECTION B: Environmental & Climate Conditions

Q6. Has mining affected farmland in this community?

☐ Yes

☐ No

☐ Not sure

Q7. Has your household lost farmland due to mining activities?

☐ Yes

☐ No

Q8. How has water quality (streams, wells, hand pumps) changed due to mining?

☐ Improved

☐ No change

☐ Worsened

☐ Not sure

Q9. Are there abandoned open mining pits in this community?

☐ None

☐ Few

☐ Many

☐ Not sure

Q10. Have flooding or soil erosion incidents increased in recent years?

☐ Yes

☐ No

☐ Not sure

Q11. After mining is completed, are pits filled or covered?

☐ Always

☐ Sometimes

☐ Never

☐ Not sure

Q12. Who is usually responsible for filling abandoned mining pits?

☐ Miners

☐ Mining companies

☐ Community members

☐ No one

☐ Not sure

SECTION C: Climate Change Awareness

Q13. Have you heard about climate change before?

☐ Yes

☐ No

Q14. In your opinion, how does mining affect the environment in this community?

☐ Causes serious environmental damage

☐ Causes some environmental damage

☐ No effect

☐ Improves environment

☐ Not sure

Q15. Have you received any environmental or climate education in the past two years?

☐ Yes

☐ No

SECTION D: Legal Awareness & Community Rights

Q16. Does this community have any agreement with miners or mining companies?

☐ Yes

☐ No

☐ Not sure

Q17. Do you know about your community land rights?

☐ Yes

☐ No

Q18. Do you know where to report environmental damage caused by mining?

☐ Yes

☐ No

Q19. Have community members ever raised complaints about mining impacts?

☐ Yes

☐ No

☐ Not sure

Q20. Have you or anyone in your household ever reported a mining-related environmental problem?

☐ Yes

☐ No

SECTION E: Community Participation & Governance

Q21. Have you attended a community meeting where mining issues were discussed?

☐ Yes

☐ No

Q22. How involved are women in mining-related decision-making in this community?

☐ Very involved

☐ Somewhat involved

☐ Rarely involved

☐ Not involved

☐ Not sure

Q23. How involved are youth in mining-related decision-making in this community?

☐ Very involved

☐ Somewhat involved

☐ Rarely involved

☐ Not involved

☐ Not sure

Q24. Are the benefits or money from mining discussed during community meetings?

☐ Always

☐ Sometimes

☐ Never

☐ Not sure

SECTION F: Community Needs & Priorities

Q25. What problems are caused by mining in this community?

(Select all that apply)

☐ Water pollution

☐ Farmland loss

☐ Unsafe mining pits

☐ Youth unemployment

☐ Community conflict

☐ No major problem

☐ Other (Specify) _____

Q26. What support does this community need most?

(Select up to two)

☐ Environmental awareness training

☐ Legal rights education

☐ Mining safety training

☐ Land reclamation support

☐ Advocacy support

☐ Alternative livelihood training

☐ Other (Specify) _____

ANNEX 4: MINER SURVEY – BASELINE & NEEDS ASSESSMENT

i. Location

☐ Town 1

☐ Town 2

☐ Town 3

☐ Town 4

☐ Town 4

☐ Town 5

☐ Town 6

☐ Town 7

SECTION A: Socio-Demographic Information

1. Sex
   ☐ Male
   ☐ Female
2. Age Group
   ☐ 18–24
   ☐ 25–34
   ☐ 35–44
   ☐ 45–54
   ☐ 55+
3. How long have you been involved in mining?
   ☐ Less than 1 year
   ☐ 1–3 years
   ☐ 4–6 years
   ☐ More than 6 years
4. What type of mining do you practice?
   ☐ Artisanal / small-scale mining
   ☐ Semi-mechanized mining
   ☐ Mechanized / industrial mining
   ☐ Other (specify)
5. Is mining your main source of income?
   ☐ Yes
   ☐ No

SECTION B: Mining Safety Practices

6. Do you use protective equipment while mining? (helmets, gloves, boots)
   ☐ Always

☐ Sometimes

☐ Never

7. Have you received training on safe mining practices?
   ☐ Yes
   ☐ No
8. Have you or anyone you work with ever been injured while mining?
   ☐ I have been injured
   ☐ Someone I work with has been injured
   ☐ Both
   ☐ No injuries
9. Do you have access to first aid or emergency care at the mining site?
   ☐ Yes
   ☐ No
   ☐ Sometimes

SECTION C: Environmental Practices

10. After mining, are the pits you excavate filled or covered?
    ☐ Always
    ☐ Sometimes
    ☐ Never
11. How are mining byproducts (soil, tailings, chemicals) usually managed at your site?
    ☐ Collected and stored safely
    ☐ Dumped near water sources
    ☐ Left on site without covering
    ☐ Mixed practices / Not sure
12. Are you aware that mining can cause soil erosion, flooding, or other environmental problems in your community?
    ☐ Yes
    ☐ No
13. Have you received training on environmental protection in mining?
    ☐ Yes
    ☐ No
14. Do you use mercury in your mining activities?
    ☐ Yes, frequently
    ☐ Yes, occasionally
    ☐ No

SECTION D: Legal Awareness & Community Engagement

16. Are you aware of any mining regulations or laws in your community or county?
    ☐ Yes
    ☐ No
17. Do you know if your mining activities have a community agreement, license, or permit?
    ☐ Yes
    ☐ No
    ☐ Not sure
18. Have you ever reported mining-related accidents or environmental issues to authorities, community leaders, or mining supervisors in the past 2 years?
    ☐ Yes
    ☐ No
19. If yes, who did you report to? _____
20. Do you attend community meetings where mining issues are discussed?
    ☐ Yes
    ☐ No

SECTION E: Livelihoods & Needs

21. Besides mining, do you have other sources of income?
    ☐ Yes
    ☐ No
22. What support would help improve your mining practices or income?
    ☐ Mining safety training
    ☐ Environmental protection training
    ☐ Access to tools or equipment
    ☐ Alternative livelihood training
    ☐ Access to microfinance or savings support
    ☐ Other (specify)
23. What is the biggest challenge you face as a miner?
    ☐ Unsafe working conditions
    ☐ Environmental risks (flooding, erosion, contamination)
    ☐ Lack of training
    ☐ Low income
    ☐ Conflicts in mining areas
    ☐ Other (specify)

ANNEX 5: COMMUNITY FOCUS GROUP ASSESSMENT QUESTION

#	Question	Why This Question is Important / What to Expect	Probe Questions / Follow-Ups
1	What are the biggest problems mining causes in your community?	Helps identify environmental, social, and economic issues that need awareness or advocacy interventions.	- How does it affect farmland, water, or forests? - Who suffers the most (women, youth, farmers)?
2	How aware are community members about climate change and its effects?	Shows baseline understanding of climate issues. Useful to plan climate awareness sessions.	- What changes have people noticed in weather or flooding? - Do they link these changes to mining or other activities?
3	Do people in the community know their rights related to land and mining?	Assesses legal empowerment needs; identifies gaps in knowledge about community rights.	- Do people know how to report environmental damage? - Have there been any disputes or complaints?
4	How are decisions about mining made in this community?	Reveals participation and governance gaps; supports advocacy for inclusion.	- Who is involved (chief, elders, youth, women)? - Are decisions shared openly?
5	If someone came to your community to teach about safe mining, climate change, and your rights, would your community accept it?	Measures willingness to participate in awareness and advocacy activities.	- Why would you accept or refuse? - What topics are most important? - What time would work best?
6	What actions do you think the community can take to reduce environmental damage and improve safety?	Generates community-led solutions for training and advocacy programs.	- Can the community monitor abandoned pits or waste? - Who should lead these efforts? - Are there existing community rules or norms for mining?

Annex 6: Map of the survey communities