

Vulnerability and Resilience Issues Profile of Jomoro District, Western Region of Ghana



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Cover Photo: *Top:* Balibangara lagoon at New Town & *Down:* Mpeasem Community mapping

Cover Photo Credit: Richard Adupong

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LIST OF ACRONYMS

NADMO	National Disaster Management Organization
MTDP	Medium-Term Development Plan
FoN	Friends of the Nation
CRC	Coastal Resources Center
FM	Frequency Modulation
GTV	Ghana Television
KVIP	Kumasi Ventilated- Improved Pit
JDA	Jomoro District Assembly

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1.0 Introduction

This report details priority issues outlined as part of a rapid vulnerability assessment¹ conducted in November, 2011 in 28 shorefront communities in the Jomoro District of the Western Region, Ghana. The purpose of the assessment was among others to raise awareness by communicating to the district, a clear sense of the relative vulnerability of coastal villages to natural hazards and climate change and incorporate ideas of exposure, sensitivity and adaptive capacity as part of District spatial planning. Information was gathered relative to four thematic areas: Governance and Leadership; Coastal Resources Management; Risk Awareness and Emergency Response; and Economy and Society.

There are four sections to this report. Section one offers a brief introduction, section two entails a summary of the key issues profiled at the district scale. Sections three and four respectively centers on community-specific findings on each of the thematic areas and the participatory mapping exercise in each community.

2.0 Key Vulnerability and resilience Issues profile of Jomoro District

2.1 Priority issue # 1

Combination of poor access to educational infrastructure and lack of trained teaching personnel at the basic education level is resulting in high school drop-out rate, poor pupil performance and spurring entry of prospective students into the fishery in the Jomoro district. This problem is resulting in low standard of education and driving increased fishing effort.

2.1.1 Nature of the issue

On an annual basis, majority of the coastal communities in the Jomoro district record poor grades in the basic school certificate examinations. For instance, in the 2010 basic certificate examinations, Mangyea D/A JSS, Anlomatuope District Assembly JSS and Edobo-Atwebanso Catholic JSS recorded zero percent pass. Over the years, this problem has stalled progress on the educational ladder by some pupils and truncated opportunities for further education by many others. Of particular concern is the low attention offered girl-child education in the coastal communities. The situation has led to some teenage girls getting married immediately upon completion of junior high school while many others drop out of school. Invariably, school drop-

¹ Report on findings of the physical impacts and vulnerability to natural and climate related hazards in the coastal communities are captured in a separate document.

outs and those who fail to pursue secondary education engage in fishing activities, which is the major livelihood source in the coastal communities.

Several factors account for the falling standard of basic education in the coastal communities, notable among them are inadequate teaching and learning materials, inadequate professional teachers, teacher indiscipline, weak English language skills, failure to complete curriculum, lack of parental support towards pupils' education, inadequate external and internal teacher supervision and low interest of pupils' towards education. Recently, information, communication technology (ICT) education has been introduced into the school curriculum. Yet there is limited access to computers to facilitate ICT training.

2.1.2 Stakeholder perspectives on the issue

Most stakeholders are worried about the falling standards of education in the district. Most parents who had preferred their children to get education to the higher level are extremely disturbed by the appalling basic school examination results. They identified causes hampering academic work in the public schools and resulting to the poor performance.

Most communities visited during the survey complained of low teacher population at the basic schools. This was attributed to the unwillingness of trained teachers to offer their services in these communities due to inadequate infrastructure including teachers' accommodation, potable water, toilets, health facilities and good road network. Even where there are few professional teachers, their attitude and that of other public school authorities leave much to be desired. It is not uncommon to find most classrooms empty during school hours.

Some parents and guardians attribute the abysmal performance of pupils to poor performance of the teachers and claimed to have appealed to the district directorate of education for immediate transfer of some teachers and headmasters. Again, they revealed that the absence of pre-school facilities in most areas is contributing to the poor education standards. This was much emphasized during the community interactions in Buakwah, Metika, Mpeasem, Nzemetianu and Kengen. School children in most of these areas have to trek far distances to access kindergarten. This situation according to them poses great security risk since the children normally walk along major roads. Moreover, some of the schools are far away from the communities and as such both teachers and students have to walk at least a kilometer to the schools. In such situations, they usually arrive late and tired; and therefore mostly forgo first lessons. Equally mentioned by stakeholders particularly elderly men and women was that most young children begin their basic school from class one and makes it difficult to acquire the appropriate academic foundation. Stakeholders further indicated that most children are unable to read properly and write legibly, which affects their academic pursuit at the higher basic school level causing them to drop out.

Added was that due to lack of good foundation at the pre-school level, many children drop out of school in their very young pre-teen years and indulge in fishing activities (especially carrying of fish at the beaches), and stealing of people's items and farm produce like coconut. Again, the weak academic foundation, has led many children to lose interest in formal education at the early stages of their lives and turn to the same vocation as their parents – particularly farming and fishing.

Many stakeholders strongly believe that if the current standard of education in the district is not improved, most pupils cannot progress to SHS and to the tertiary level. This, they believe, would see the district with no educated future leaders. It was also revealed that, as an initial step to address the challenge of poor pupil performance at the basic education level, some communities have planned to motivate teachers and make monetary contributions to hire teachers from their respective communities to help the few trained teachers at the basic school. On the contrary, some parents are unwilling to partake in this gesture, citing the FCUBE² as the reason. Moreover, the few who are willing to support are unable to do so, due to the prevailing poor economic conditions and low incomes. Some parents however, supply food stuff to teachers so that they can do their best for their wards. Examples of some communities that contribute to help teachers are Twenen and Ahobre 1. In other places, such as Ahobre 1, and Ezinlibo, local laws prohibit pupils of school going age to be seen outside their homes after 8:00pm. However, strict enforcement of this rule is problematic.

2.1.3 Information gaps

Some gaps exist in our understanding of the reasons for poor performance at the basic education level. And this begs several questions that require further clarification to help address this issue. These questions include;

- Why do some private basic schools in the district perform better than government schools, though teachers in government schools are trained whilst most in private schools are untrained?
- When will the district government provide basic school infrastructure in most coastal communities?
- Why does most teachers and educational authorities who are responsible to ensure that public schools run effectively rather send their children to private schools?

2.1.4 Desired outcomes

².The Free Compulsory Universal Basic Education (FCUBE) launched in October 1996 has a constitutional legal backing designed to address some of the shortcomings of the educational reforms.

Stakeholders in the coastal communities are urging the District Assembly and the Ghana Education Service (GES) to provide adequate teachers' accommodation and improve other social amenities to attract teachers to the coastal communities. GES should also strengthen its monitoring and supervision systems to ensure that problems are identified at early stages and dealt with, taking into account the peculiar issues in the coastal communities. The national government should pay serious attention to education and support it economically and morally.

2.2 Priority issue # 2

Combination of high wave energy and human activities, notably the practice of sand winning, is resulting in coastal erosion which in turn, leads to destruction of fishing settlements, loss of fish landing sites, recreational sites, cultural sites and displacement of fishing and agro-based livelihoods in the Jomoro district.

2.2.1 Nature of the issue

Coastal erosion results from environmental factors such as tidal or wave action. However, in the Jomoro district, this phenomenon is exacerbated by human activities, particularly sand winning. Although the act of sand winning along the beaches of the country is illegal, it continues to be a source of sand supply for personal and commercial uses. Sand winning, as is currently being practiced in the district can be described as large and small scale. While the large scale sand winning is the major supplier for the construction industry, the small scale operations are for household use such as building and its rehabilitation. However, most sand miners who are desperate to make their living vent their spleen on the volumes of sand at the beaches in the district.

Consequently, several years of large scale sand winning in some areas of the district has contributed to forced relocation of some settlements. This is particularly the case of new Kabenlansuazo which was created some 50 years ago after resettlement of people from Old Kabenlansuazo. Other communities facing similarly greater impact of coastal erosion include Metika, Twenen, Allengenzule, Ezinlibo, Egbazo and Agyeza. In the last few years, the district assembly passed bye-laws which prohibit communities from winning the beach sand. However, enforcement of this bye-law remains a major concern although some violators have been arrested at Half Assini. Stakeholders agreed that due to political reasons, enforcement has become weak in the district. Most assembly representatives who should help enforce the laws in their electoral areas are not doing so for diverse reasons. One assembly member whose name is withheld noted, *“we the assembly members are not paid hence enforcing regulations which will earn us more enemies is not a priority to us”*. It is however worth noting that the process of sand winning in these coastal communities has accelerated degradation of the shoreline environment over the years.



FIGURE 1 PEOPLE MAKING BLOCKS WITH SAND AT THE BEACH (SAND WINNING)

2.2.2 Stakeholder perspectives on the issue

It is a general perception that approximately 50 meters of the shoreline has eroded since the last two decades in most coastal communities within the district. In some communities, refuse are dumped at the shoreline to slow the rate of erosion but this has not yielded any positive impact. Despite most stakeholders in the coastal communities accepting the fact that human activities such as sand winning contributes immensely to coastal erosion, they opined that small scale sand winning does not significantly lead to coastal erosion. They have therefore substituted large scale sand winning with small scale operations. *“No matter what we do, we will still experience the coastal erosion since it is natural”* was a statement that most of the people in the district issued.

In Allengzule, an elderly man noted, *“currently, the shoreline is flat and the sandbar is very thin so it would be very easy for the sea to move closer to the town”*. In Ahobre No.2, it was revealed that net mending site for fishermen, coconuts trees, vehicular road, football field and a warehouse has all been destroyed by coastal erosion. At Atwebanso, a woman indicated, *“most of our houses are in the sea, when it rains heavily or certain times when you sit or walk at the beach, you see beads, bowls etc. on the beach especially at low tide—they are all for us, our mothers and fathers.”* Equally in Old Edobo, a man in his late 50s noted,

“about 25 years ago, the shoreline was not as it is now, the sea has moved inland approximately 60 meters, people did not live there but it used to be a football pitch for children and vehicles also used it but those who were staying closer to the beach have relocated”.

At Half-Assini an aged fisherman indicated, *“there was huge space of land where we play football and berth our canoes and wait under sheds for an approaching canoe, but that space is no more”.*

The situation is not different at Number 4, a migrant settlement west of Half-Assini. The community members identified the last building washed off by erosion as between 1993-1996. Also indicated was that the high water mark usually reaches houses and portions of the cemetery. With increasing coastal erosion, stakeholders believe their current location will be destroyed in few years but look unconcern as they are migrants. Among the fears expressed by stakeholders include possible and likely loss of land, houses and properties to coastal erosion. An extreme fear noted was the financial incapacity to relocate if it becomes necessary.

2.2.3 Information gaps

Knowledge gaps on the physical processes in sediment budget, wave energy and local tidal patterns are apparent. No regulatory options such as coastal development setbacks, best practices for shoreline construction and other land use planning measures have been piloted to reduce vulnerability to coastal erosion in the district.

2.2.4 Desired outcomes

- Implementation of spatial and land use plans that identifies and responds to coastal erosion in dynamic shoreline areas in the district.
- Public education on the impacts of sand winning targeting inhabitants of coastal communities.

2.3 Priority issue # 3

Bad fishing practices coupled with the regular incidence of algal bloom in the marine environment is resulting in dwindling fish catch and displacing fishery-based livelihoods while threatening food security in the Jomoro district. This problem is aggravated by the prevailing low agricultural productivity in the district.

2.3.1 Nature of the issue

Fishing and farming constitute the key drivers of the local economy and are the major livelihood options practiced in the Jomoro district. While fishing is mainly artisanal, the major agro-based enterprises are coconut, oil palm cultivation and food crop production. Coconut oil processing and pig farming are also common occupations of coastal dwellers. Mostly, the indigenous

populations, known as the *Nzemas* are the farmers and occasionally engage in beach seine fishing. On the other hand, the migrant populations, mainly the *Fantis* and *Ewes*, are predominantly artisanal fishers. Over the years, the coastal economy has been affected by decline in the major livelihoods due to dwindling fish catch and low crop yields. The periodic incidence of algal bloom in the marine environment is a concern in the district since this has been a major cause of decline in fish catch. However, the cause and sources of the algal bloom remain to be ascertained with a higher degree of certainty. Bad fishing methods, such as light fishing and use of chemicals have also negatively impacted the fishery.

The coconut industry on the other hand, has been deteriorated by the incidence of Cape Saint Paul Wilt disease and also due to over-age crop. Meanwhile, the characteristic sandy soils of the district have over the years, failed to adequately support food crop production.



FIGURE 2 FISHERMEN DRAGING GREEN-GREEN CAUGHT IN THEIR NET

2.3.2 Stakeholder perspectives on the issue

Vulnerability of fishery and agro-based livelihoods to environmental stresses was expressed by most stakeholders consulted during the survey. Particular concerns were expressed by residents of Jaway, Mpeasem and New Town about the fact that significant quantities of food crops are being imported from Ivory Coast on regular basis. There was also a general perception that the remaining agricultural lands have lost their fertility and consequently, do not support substantial crop growth. Again, community people asserted that the poor fertility of the soil and its sandy

nature does not allow for the cultivation of diversified crop. In other coastal communities, fishing expeditions were noted to be halted upon the incidence of algal bloom during some periods of the year. Community folks likened the incidence of algal blooms to the occurrence of a disaster and opined that the NADMO design a programme to provide relief items to fishing households affected by this menace.

However, most coastal dwellers were of the view that there is limited capacity to turn the local economy around. They expressed their frustration about the fact that no systematic attempts have been made to address these issues including the incidence of algal bloom. It was revealed that with the exemption of communities like Buakwah and few others where soap making and tie and dye production were initiated but production halted due to poor product quality, no supplementary or alternative livelihoods have been identified in most communities. Though few individuals are engaged in piggery, they see the collapse of the coconut industry as affecting their operations, since this rely on the chaff from coconut oil production. Most women coconut processors also expressed similar concerns. The case of the youth in the coastal communities is particularly disturbing, since majority expressed their motivation to migrate to some urban centers of the country and nearby countries like Ivory Coast and Libya in anticipation of a better life. An opinion leader noted that, *“if necessary action is not taken, all the youths will move from the communities leaving the aged to die prematurely.*



FIGURE 3 DECLINING FISHERY LIVELIHOODS

2.3.3 Information gaps

Over the short to medium term, the cause and sources of the algal bloom should be established with a high degree of certainty and fishing households that are severely impacted by this problem should be identified for targeted social interventions. Perhaps, viable uses of the algal blooms may also be explored.

2.3.4 Desired outcomes

- Livelihood and socio-economic conditions in the coastal communities are improved.
- Diversified and alternative livelihoods for coastal dwellers are identified and implemented.

2.4 Priority issue # 4

Increased filling of wetland and floodplains for housing construction and establishment of artisanal fishing settlements, coupled with intense rainfall events, is causing flooding with attendant destruction of property and threat to lives.

2.4.1 Nature of the issue

During the months of July to August, where the rains are intense, low-lying coastal communities are flooded as a result of overflow of the banks of most streams and lagoons. In most areas, there have been desperate attempts at curbing flooding through dumping of refuse along the banks of some lagoons, though this measure has been ineffective. Flooding is a major concern for most stakeholders in the coastal communities visited. It was noted during the survey and confirmed by a NADMO official that communities such as *Old Edobo, Alomatuope, Metika and Beyin* are vulnerable to being flooded from overflow of rivers and streams whilst *Half-Assini, Ekpu, New Edobo, Atwebanso and Bonyere* are prone to flooding by storms. Other communities that experiences flooding include Egbazo, Old Kabenlansuazo, Allengenzule, Ellonyi, Ahobre 2, Mangyea, Effasu, Ngelekazo and Kengen. Often times as flooding occurs, farmlands, buildings, recreational sites, churches and other properties are submerged. In most instances, flood victims are evacuated to stay in schools and relief items such as mattress, plastic cups, rice, maize and cooking oil are sometimes supplied by the district NADMO team. In 2009, heavy rainfall resulted in serious flooding which rendered many people in the Jomoro District homeless. The rainfall saw many people severely affected and resulted in loss of lives. It is reported that the former Member of Parliament (MP) for the Jomoro constituency and now Ghana's Ambassador to South Africa, H.E Lee Ocran donated 1,400 bags of cement to the flood victims. So far, the

district assembly has decided to undertake drainage construction projects to address the issue of flooding.



FIGURE 4 DEGRADED MANGROVE AREA

2.4.2 Stakeholder perspectives on the issue

In New Edobo for instance, inhabitants indicated that flooding is an annual affair during raining season. In Old Kabenlansuazo, residents had fears that in future, flooding will destroy the whole community. As such, they have taken steps to acquire a new site -New Kabenlansuazo. Some community members relocated to the place about 50 years ago. In Egbazo, residents have serious fears about the flooding that occurred two years ago since they have no place to relocate and foresee a repeat of the incident. Two suburbs of Half-Assini; Cambodia and Peace Town, which are noted for their low-lying landscape has been flooding since time immemorial. However, people keep putting up new building/structures in the area although flooding occur during heavy downpour. In most communities, nothing significant has been done to tackle the situation. In some communities such as Egbazo, Ahobre 2, Half-Assini and Metika, inhabitants have constructed gutters to serve as channels to allow free flow of storm water into the sea. As indicated by most stakeholders, the support of NADMO has been inadequate and in most cases, relatives, friends and Churches have come to the aid of flood victims.



FIGURE 5 INCIDENCE OF FLOODING IN THE DISTRICT

2.4.3 Information gaps

There are factual gaps that hinder our ability to verify the main implications of filling and developing wetlands and flood plains and addressing the need for resettlement and spatial planning in the Jomoro district. For instance, in as much as we know the general implications of siting housing units on flood plains and wetlands, we do not have site specific information and reliable estimates on flood extent and other hydrodynamic factors to enable a more informed assessment and understanding of the existing risk factors and the economic losses imposed by flooding of key assets. Also, in order to better quantify potential losses, a detailed assessment of vulnerability of planned infrastructure to flood and other coastal hazards should be undertaken. From the institutional standpoint, other questions that need further clarification include; what is the extent to which the district government can exercise powers of compulsory acquisition of land for resettling communities exposed to risks of flooding and other coastal hazards? To what extent can the district government establish and strictly enforce zoning and set-back regulations in the face of existing centralized land use decision making processes in the country.



FIGURE 6 BALIBANGARI LAGOON AT NEW TOWN

2.4.4 Desired outcomes

Vulnerability to flood hazards is reduced through effective land use and spatial planning.

2.5 Priority issue # 5

Weak leadership and lack of participation in resource allocation decision-making is resulting in conflicts and breakdown of social cohesion at the community level. Combined with the prevailing ineffective communication between communities and their assembly representatives, this problem is eroding the trust for local leaders and threatening the peace and stability in most communities in the district.

2.5.1 Nature of the issue

Since the last few years, allocation of land resources to potential investors and developers in the Jomoro district has been an issue of concern. Normal practice associated with such decision-making processes involves consultations between Chiefs and heads of land owning families, clans and or individual land owners. However, in recent times, some decisions on the disposal of large tracts of lands have witnessed less consultation with the interest groups concerned and resulted in conflicts emanating from the sale of such lands. On some occasions, disposal of land

had been characterized by violent clashes that led to fatalities. Such conflicts leave in their wake, a less cohesive community with no mechanisms for collective action. Besides, some communities in the district are grappling with the lack of information flow from their assembly representatives. This is particularly pronounced in communities where the assembly persons are non-residents of the electoral area. Over the years, this lack of communication has negatively impacted the development of the affected communities, since their needs are not adequately represented on the agenda of the district government. Usually in communities where conflicts prevail, other leaders rather than the Chiefs or assemblymen are more trusted.

2.5.2 Stakeholder perspectives on the issue

Most stakeholders feel neglected in the affairs of the district as their assembly representatives have failed to communicate issues to and from the district assembly. Most assembly members are accused of not nursing their electoral areas. There is therefore a huge information gap existing between the electorates and their assembly members. In most coastal communities, assembly members are not seen as key leaders as their leadership is not felt in the communities. According to residents of most coastal communities, assembly members have failed to interact with them to solicit their concerns and needs for onward transmission to the district assembly. This, they believe is because the assembly representative is not resident in the community.

Another disturbing leadership problem often referred to was chieftaincy disputes in some coastal communities. It was expressed that in such communities, respect for traditional authorities are completely lost.



FIGURE 7: COMMUNITY DISCUSSIONS

2.5.3 Information gaps

There should be more clarification on the institutions and mechanisms for resolving resource use conflicts at the community level.

2.5.4 Desired outcomes

- Enhanced communication between assembly representatives and their electorates.
- Enhanced cooperation between the District Assembly and traditional leaders to contribute towards development of coastal communities.
- Peaceful environment devoid of chieftaincy disputes.

3.0 Coastal Communities' Summaries

The following are the coastal communities in the Jomoro District visited during the study.

- Avolenu (New Town)
- Effasu
- Mangyea
- Enzimitianu
- Mpeasem
- Buakwaw
- Number 4
- Alomatoape
- Jaway
- Metika
- Half Assini
- Ekpu
- Old Edobo
- New Edobo
- Atwebanso
- Ahobre No.1
- Ahobre No.2
- Egbazo
- Old Kabelasuazo
- Bonyere
- Ezinlibo
- Allengenzule
- Agyeza
- Twenene
- Kengen
- Eloyin
- Ngelekazo.

NEW TOWN

GOVERNANCE AND LEADERSHIP

The acting chief, chief fisherman, Assembly member and some religious leaders are considered key leaders in the community. The acting Chief is respected by most people in the community whilst the chief fisherman is seen as the leader of the fisher folks and respected as such. Most community gatherings are initiated by either the Chief or the Assembly member or both. Such meetings are mostly well attended by residents and in a way denote how chieftaincy is respected in the community. Residents claim to always respond to the Chief's call or announcement made by him or his outfit and remain committed to him.

As often as possible, the traditional authority discusses issues with the entire community. Likewise, the Assembly representative communicates with community members on many occasions especially when vital issues are discussed at the district assembly and need to be known by all residents of the community. What remains a key leadership problem is the delayed enstoolment of a new chief. People believed it has deferred development in the community.

In terms of security, law and order, majority of residents feel very safe and adhere to local and national government laws, norms and taboos. The presence of security agencies such as the Immigration and Navy has been attributed to the orderliness observed in the community. As a 'border town', the security officials are seen as contributing to the safety of residents.

Though local leaders constantly ensure that there is good enforcement of laws, offenders are dealt with by the appropriate authorities. Criminal and civil cases are handled by the Police and traditional authorities respectively. In extreme violation of certain important norm (s), the offender is banished from the community. Very little reliance is placed on external security forces as people by nature try not to go contrary to local and national laws and customs.

COASTAL RESOURCE MANAGEMENT

The coastal resources found in the community include the lagoon-*balibangara*, streams-*asama asu*, *aloa azule*, *ebakpa* and *nua mbaka pkole*, coconuts and the coastal sea. The shoreline was used for coconut plantation, but most of them have been washed away by the sea. It is believed that most houses currently close to the shoreline will be destroyed in an estimated 15 years. Also, the lagoon and stream has been subjected to bad acts such as defecation, washing of chemicals, bathing and waste dumping. However, no attempt has been made to maintain the coastal resources.

Ownership of land rest on the seven clans in the community and respective family heads are in charge of the lands. However, no family is willing to sell or lease portions of its land to indigenous and foreigners but prefer to reserve the land for the generational use of the unbo

members of their families. Based on this, individual whose families have no land at the moment have great difficulty to access land from other families. Additionally, families with land are not ready to release land for community infrastructure such as Police station which was planned by the late Chief but not yet done due to its proposed location; which is owned by one of the families. Residents noted that infrastructure such as the Junior High School and health facility (clinic) were built at flood prone area. It is therefore not surprising that the part of the area always floods especially at rain seasons.

RISK AWARENESS AND EMERGENCY RESPONSE

Community members interviewed were aware of risks in the community and identified; sea level rise, erosion, flooding and heavy rainfalls as natural and environmental threats and named some few causes to those threats; saying, the flooding is as a result of the swampy area and the river which has many tributaries. In order to curb the menace, community members dumped garbage/waste materials at the banks of the lagoon to control the flooding but proved futile, leading to the relocation of some members who lived close to the river. Equally mentioned was that the changes in weather, that is heavy rain falls and severe sunshine have disabled farming activities.

Sadly, no Ghanaian radio station works in the community except those of neighboring Ivory Coast. Tigo is the only mobile network that works in New Town. Residents however stated that, relatives who lives in major cities of the country call to inform them of most emergencies—for instance, if it is expected to rain heavily in the Western Region or the district capital-Half Assini. The community is unprepared to handle emergency situations. There are no educational programs that promote risk awareness neither is there any group that help out on emergency situations.

ECONOMY AND SOCIETY

Farming, fishing and petty trading are the main livelihood options in the community. Most people engage in one livelihood that is, either as farmer, fishermen, fishmonger/processor or petty trader. The farmers explained that, farming is at risk as crops are frequently destroyed by flood and changes in rainy season adding that, trading which is mostly done at Jaway Wharf is also at risk as market conditions determines profits. On their part, the fisher folks noted the practice of unsustainable fishing methods in other parts of the region and the country coupled with the algae bloom as causing the rapidly declining fish stock and thus affected livelihoods. Most youth interviewed expressed their lost of hope in their community and defended how eager they are willing to relocate; noting that already, many youth have moved to major cities of the country and Ivory Coast and the trend they emphasized will continue till economic conditions in the community are improved. The aged are most marginalized in the community. The poor farming and fishing conditions have affected livelihoods and makes people unable to cater

financially for their older folks. The aged are not prevented from attending community gathering but most of them do not have the physical strength to attend such meeting and make meaningful contributions. However, the extended family system plays a crucial role in taking care of the marginalized.



FIGURE 8 COMMUNITY DISCUSSIONS IN NEW TOWN

EFFASU

GOVERNANCE AND LEADERSHIP

Chief and elders, Assembly member, youth leaders and unit committee representatives are the people regarded as key leaders in the community. Though most people respect the chief's judgments and decisions, they feel he does not allow them to contribute to most decision making processes. Moreover, the Assembly member less frequently presents the District Assembly's decisions to the community. Community members are assured and certain of security in their community. Some social norms and local laws which are supposed to be a guiding principle have however become something regarded by most people as ancient and void. However, there are some norms and laws that the entire community respect and still hold in high esteem.

COASTAL RESOURCE MANAGEMENT

Almost all coastal resources in the community are said to be degraded. These include sand, sea, lagoon and coconuts. Though suggestions are usually made on ways of keeping the coastal resources in good shape, those virtues are not practiced. People win sand for construction purposes, and this has resulted in the beach sand being badly degraded and the coconut trees have been eroded by the tidal waves. The lagoon serves as refuse dumping site for many people. There is also intense cutting of mangroves around the lagoon, as well as building of houses near the wetland. Land is owned by individuals and the stool. Community members explained that most infrastructural development in the community are done in a way their coconuts or other resources are destroyed.

RISK AWARENESS AND EMERGENCY RESPONSE

Most of the natural and environmental threats are well known by the community, with their causes as well. Among the risk were emergence of 'green-green', sea level rise, diseases and excessive sunshine. However, they lack educational programmes on risk awareness and also are not doing much on their own to reduce impacts of the risks. There are no down plans to handle emergency situations neither has any member of the community been trained for such purposes. There is also inadequate information on emergency situations. It was made clear that the community as a whole is not prepared to handle emergencies.

ECONOMY AND SOCIETY

The community's economy, according to the description by the people, has really gone down the drain since all economic activities which existed during the times of good fish catch, have ceased because of the decreased catch trend. Due to the decreasing economic activities in the community, some of them have resorted to additional petty activities to help them make a living. Within the community, they have not identified any alternative livelihood, but they have

identified inter-community trading as one source of livelihood which may help them. However, they explained that it has its associated challenge of start-up capital. As such, intervention is being hoped to surface from local or national government. Yet, the community believes that the youth can grow in the community due to the love they have for the community coupled with the *fun* they share. As noted by one adult; ‘*we enjoy swimming together in our river*’. No individual or group is seen as marginalized. However, in some time past, people who had no children irrespective of age were not involved in community decision making.

MANGYEA

GOVERNANCE AND LEADERSHIP

Leadership is well felt in the community by the community members since they give a prompt response to the chief’s call to meeting anytime he does so. Moreover, they do their possible best to cope with all laws and regulations in the community which they see as being for their own good. There also exist a cordial relationship between the leaders and the community members. Though gathering the entire community is somehow challenging, the assembly member does well to brief them on pertinent issues which evolved during any assembly sitting.

The community has its members enjoying a good level of safety since some of them mostly sleep outside their rooms and yet have no fears of been attacked or thieves stealing from their rooms. In addition, no one has been punished for breaking a local or national law as well as the norms of the community, to scare them. This is because no one has fallen prey to their laws and norms since there is a taskforce in place to see to it that nobody breaks the laws and the chief and elders of the town always educate and remind the people on the norms of the town. Hence have never called on the Police or any external sources of help.

COASTAL RESOURCE MANAGEMENT

The coconut trees which add up to the sea and the lagoon as their main coastal resources are relatively in good shape. However, those inland are not doing well comparatively. The algae bloom ‘*green-green*’ has brought about much worry to fishermen by dominating the sea and extending into their lagoon as well. Attempts by community members to remove the green-green from the lagoon did not work. There is an agreed law by all members of the community that prevents people from cutting mangroves. The rationale is to help preserve the mangroves for the benefit of future generations. There is a taskforce that enforce the law.

Land is owned by families and the stool. The chief and family heads leads issues on land acquisition. Land is no longer sold as they used to, but it’s rather given out on lease. However, if

an infrastructural development demands the felling of coconut trees, the owners are not consulted and their coconut trees are felled with no compensation. However, for individual uses, coconuts owners are well compensated. Observation by stakeholders reveals flooding occurs within intervals of six years with increasing coastal erosion. Community members indicated that previously when there was full moon, they used to get a lot of crabs along the shore, but the situation has changed in recent times. They also could play football along the beach some years back and during those years, they had a lot of coconut trees and could even dock their canoes as well. All these are no longer taking place where they used to.

RISK AWARENESS AND EMERGENCY RESPONSE

The residents expressed good knowledge of the natural and environmental threats and the associated causes. They mentioned of coastal erosion and flooding as the common threats experienced in the community. According to them, torrential rains cause flooding which destroy farm crops. This is tremendously affecting farming activities, since farmers have to change the times and seasons of planting various crops to suit the weather changes. However, they reported that erratic rainfall and sunshine have rendered this strategy futile. They also indicated of corrosion of their roofs and ripping off during rainstorms. Yet, the community has not taken any step towards minimizing the impacts of such risks. There are no educational programmes to promote citizens' awareness on risk adaptation. Community members indicated that they sometimes get national emergency information from television and radio stations, but not concerning their community. However, they noted that Tullow oil at times sends representatives to the community to inform them about some local emergencies. Whenever there is disaster in any part of the town, all residents come together and mobilize resources to tackle the situation. However, there are no groups or individuals in the community who have received training to handle emergency situations, but people help individually with their strength and the little money they have. Though support is usually sought from NADMO in times of disaster, such appeal yields no positive response.

ECONOMY AND SOCIETY

Most people depend on one livelihood source-either farming or fishing but few engage in the two and/or petty trading at a time. Compared to the other livelihood sources, fishing is at most risk. The village's economy, as explained by its members, is decreasing at an alarming rate with no attempt made to change the situation. Start-up capital has hindered individuals with interest to engage in trading. Due to the hardships in the community, most of the youth have traveled to other communities within the region in search for better living conditions. Local leaders are afraid remaining youth will soon follow the direction.

ENZEMENTIANU

GOVERNANCE AND LEADERSHIP

The paramount chief is dead and the caretaker chief (Tufuhene) is the one who normally leads to find solutions to any problem faced in the community. The assembly member and unit committee members are also regarded as key leaders in the community. Though community members accord the Tufuhene the due respect, they still see him as not the main chief. However, meetings organized by the Tufuhene are well responded to by the entire community. The Tufuhene and his elders often gather the community to discuss issues with them; and at such meetings, community members are allowed to express their views. As indicated by the community members, about three weeks to our visit to the community, a similar meeting was held. The assembly member in the community usually discusses issues with the community after assembly sittings, and sometimes, he does consult the people for discussions before proceeding on to the assembly meetings. The only security problem in the community is theft cases. whenever there is such problem, affected persons report the case to police personnel in Half-Assini (about 40 minutes' drive from the community).

Even though they comply with some of the local laws (for example, obtaining permit before entering into another person's coconut farm), some members of the community cut trees indiscriminately for charcoal burning. Violators of social norms are punished by local leaders- Chief and Assembly representative. They explained that in the absence of the chief, the assembly member and the unit committee members ensure orderliness in the community.

COASTAL RESOURCE MANAGEMENT

The main coastal resources in the community are the sea, sand, coconuts and mangroves. With the exception of the mangroves which are not totally destroyed, all the other resources are not in preferred conditions. The sea has been taken over by the algal blooms whiles the sand dunes have reduced drastically due to sand winning and coastal erosion. The coconut industry has collapsed totally since there are no hopes of the people in depending on the coconut any longer. Even with the mangroves, some portions have been cleared for aquaculture development by residents. Families and the stool are the owners of land in the community. The stool lands are in the custody of the Tufuhene and community elders. Family heads also leads affairs of family lands. However, the consent of traditional leaders is crucial even in acquiring family lands. The shore front was some years ago used as playing grounds, vehicular route, grounds for coconut trees and landing site for canoes.

RISK AWARENESS AND EMERGENCY RESPONSE

Four main threats were mentioned by community members. It included sea level rise, deforestation, fire outbreaks and outbreak of diseases. They however lack educational programs

to promote risk knowledge though they explained that it is only ‘the Hen Mpoano’ team which comes around sometimes to educate them on certain environmental issues. The community is not involved in any activities to reduce impacts of the risks. Residents indicated that for the past five years, rainfall pattern has been inconsistent. Regardless of weather changes, the community has not altered its economic activities neither has it prepared to handle emergency situations. They have no access to information on their emergency situation and have never mobilized resources or discuss plans to address any emergency situations.

ECONOMY AND SOCIETY

Though the community has up to three livelihoods, most of them are at risk of collapse. Moreover, their economic condition is diminishing with time with the youth trying to seek greener pastures only to return when they are well to do. They expressed concerns that should the government come in to assist them in their development, their economic situation would be improved; but for them, they explained nothing could be done. With the aid of the Hen Mpoano small grants project, the people explained that they identified aquaculture as an alternative source of livelihood. However, they bitterly emphasized that they could not make any success as Hen Mpoano failed to provide the monetary support. There are no persons or groups considered marginalized in the community.

MPEASEM

GOVERNANCE AND LEADERSHIP

There is a chief who lives in Accra and is represented by the Tufuhene and local leaders who solve problem of the community in most times. The chief is however respected when he is at home but some people flout norms/laws in his absence. When something happens, traditional authorities organize community meetings to discuss the issue and other pertinent issues that may need to be considered by the entire community. Most often, a two way communication is maintained between the assembly representative and community members. Most community members, especially farmers are afraid to visit their farms alone for fear of being killed, since they often hear of such cases in nearby towns. This fear is worsened whenever they see strangers in their farms but they feel safe at home. Most norms are obeyed but that on littering is lest obeyed because a Task Force set up to ensure cleanliness and non-littering is no more functioning. There is little reliance on outside help for security in the community as most problems are handled by local leaders.

COASTAL RESOURCE MANAGEMENT

Coconuts, sea, swamp and sand are the main coastal resources. The sea and coconuts are been destroyed by “*green-green*” and disease/pest respectively thereby damaging their conditions. The community has no ways for maintain its coastal resources but hope some natural forces will preserve the resources. Lands are primarily owned by the stool and families. Land allocation is deemed adequate for community infrastructure and personal purposes. The community does not get the necessary infrastructure needed to better the lives of its citizens. For instance, lack of health post and toilet facility is of great concern to community members. Increasing rate of coastal erosion and flooding has displaced many residents who lived close to the shoreline. As such, many people have relocated inland (non-flood portions of the community). Rearing of pigs at the shore has equally being halted due to the erosion.

RISK AWARENESS AND EMERGENCY RESPONSE

Flooding, drought, change in rainy and dry seasons, hotter climate, famine and rainstorms are the main natural and environmental threats that the community faces. The only source of information on natural disasters is sometimes through radio. They used to throw rubbish into waterways but they have stopped this when they realized that this encouraged flooding and placed cement blocks on their roofs to prevent them from being ripped off during rainstorms. Rainfall pattern has changed and rains are accompanied by strong winds and storms which rip-off roofs. The change in weather has negatively affected the crops, hotter climate has affected the fishing industry and unpredictable rains are constantly destroying farm products. The local economy is weather dependent but changes in weather though affect socio-economic activities, it is not altered. No information is received on local emergencies. At times, community members

contribute and donate money or other items to those affected by emergency situations. They help themselves to some extent. However, there is no training on emergency situations handling neither are there plans that guide the community on how to manage/handle such situations.

ECONOMY AND SOCIETY

Main economic activities are farming and fishing. Each person depends solely on his or her trade. Community members complain that their economic and social well-being have been worse-off in recent years and still declining. However, it is believed nothing could be done at the community level to change the situation. Some community members are engaged in aqua culture in the Juan lagoon as an alternative source of income. They normally go to Jaway-Wharf market to buy and sell; of which conditions at the market play key role in determining income levels. The community does not consider any group or person as marginalized or disadvantaged.

BUAKWA

GOVERNANCE AND LEADERSHIP

Key leader who lead to find solutions to problems in the community is the Chief and his council of elders. Though there is a non-resident Assembly member, his authority, influence and value is not felt in the community. Residents claim the Assembly representative do not communicate with the community on any issue discussed at the district assembly either does he create the platform for their concerns and worries to be communicated to the Assembly. This inability of the assembly representative to communicate with the community is a major leadership problem noted by stakeholders in the village. The Chieftaincy is however respected by most people as they claim to hold the Chief in high esteem and respect his decisions. To ensure that the views and suggestions of most people are taken on board, the Chief and council of elders discuss issues with community members before any actions are taken or key decisions are made.

As a typical Ewe community, their culture serves as a point of reference and help to promote total security in the community. People feel very safe and comply with existing laws and norms. Security is not a challenge as traditional norms and laws are obeyed. Local leaders insure that there is good enforcement of laws. When a norm is broken, the appropriate sanctions are meted out to offenders. The punishment usually ranges from beatings through fines to banishment. Where it is deemed fair and right, the services of the Police service is used.

COASTAL RESOURCE MANAGEMENT

Community members mentioned their main coastal resources to include the coastal sea, two

lagoons-*Ekpunza & Bonza*, sand and coconuts and stated the shoreline was used for coconut plantation but indicated that, the two lagoons-*Ekpunza & Bonza* which are closed in nature are used by most people as refuse/waste dumping and defecation site. Algae bloom is seen by community members as polluting the coastal sea. However, community members explained that, there are no existing measures to safeguard the generational use of coastal resources but depend on nature and external forces to ensure that resources are well kept for optimum benefit. One woman noted “*we the Christians pray to God Almighty to protect our coastal resources and the traditionalist also consult their gods*”.

Residents of Buakwah are migrants from Volta Region and do not owe the land. Land is owned by the *Awuah Benet Family* of Half Assini. Land owners dictates what should be done on their land and never prepared to lease their land to the migrants on long term. Resources accessibility seems unfair since residents do not have control over the land and cannot suggest what the land should be used for the development of the community as a whole. Therefore, there are no facilities in place to insure the safety and well-being of people. Currently, residents rely on a single borehole for water as there is no pipe borne water. They equally have no health facility and public school. There is however a privately owned Lower Primary School (from Class one to three). As such, school children beyond lower primary and even those in such classes whose parents cannot afford the fees are forced to trek to neighbouring communities to attend school. In terms of electricity, households are yet to be connected though there is street lighting.

RISK AWARENESS AND EMERGENCY RESPONSE

Coastal erosion and flooding were identified as threats faced by the community. Residents indicated that houses and coconuts which were close to the shoreline have been washed away. The flood, which was said to occasionally occur at the extreme upper portion of the village, was believed to be caused at rainy seasons because the area is low land as residents are deeply aware of the situation. Noting the impact of the flood, almost all residents at that area have relocated to the current location which has never experienced flooding because it is perceived to be high land. Thus, the community as a whole can be said to have moved from one area to another within the same location. However, no external bodies are embarking on projects to benefit the community and contribute to addressing the problem. It is believed that weather changes have occurred over the years as depicted by unpredictable rainfall pattern with the resultant effects on planning in all aspects of human activities. Nevertheless, the community has not altered its socio-economic activities due to weather changes even though, their economy is weather dependent to the extent that as a fishing community, bumper season is usually associated with high rains. There seem to be lack of adequate preparedness since they have not been able to mobilize resources towards emergency situations but only rely on external support which is not adequate to sustain them. Adding that the main emergency is the frequent burning down of family houses by fire; the last of which occurred in September 2011. Also, residents rely on relatives and friends in the cities

who have cell phones for access to vital and emergencies situations unveiling their ordeal that, though NADMO exist, its usefulness is not felt in the community.

ECONOMY AND SOCIETY

Buakwah is a fishing community and the activity remains the only source of livelihood. Men and women are fishermen and fishmongers/processors respectively but few people engage in subsistence farming cultivating cassava, plantain and some vegetables. The major economic activity, fishing, is at major risk due to the incidence of algae bloom which is believed to rapidly reducing fish stock. The farming on the other hand remains at risk as land owners are currently not allowing farmers in Buakwah to farm on their lands. The land owners intend to use their property- land, for purposes known to them. Most women noted with enthusiasm that training on alternative livelihoods (*soap making and Tie & die*) was provided by some institutions whose names could not be recalled and of which most residents particularly the women were major beneficiaries. However, customers preferred a higher quality product and hence production has since been halted. On the part of most youth, leaving the community is the only way to financial well-being. They admit to frequently leaving the community to seek refuge in other localities within the country. Currently, most adult fishermen have moved to fishing communities in Central Region in particular *Moree*, where fish stock is claimed to be improving. However, though livelihoods are seen to be deteriorating, the aged, who are regarded disadvantaged, are well catered for by their families but not the community. They are also not involved in decision makings.

NUMBER 4

GOVERNANCE AND LEADERSHIP

Though there is no chief in the community, the Assembly member, unit committee members and the drag net owners of the community are seen as the leaders of the community. These leaders aid in the organization of communal labour, discuss issues concerning the community and communicate to the community members any information concerning the community. However, a few of the community members are reluctant to participate in communal labor. Discussions revealed that there is average compliance with laws and norms. In terms of security, the community can be classified 'somewhat safe'. They feel safe in performing all their daily activities without any fear or panic; just that being settlers (migrants) in other peoples' land, they cannot over emphasize that things will continue to be better all the time and are often afraid and think of whether land owners will demand their relocation/evacuation in some time soon.

COASTAL RESOURCE MANAGEMENT

The community does not have any ideas of how and why they should keep their natural resource in good shape; and though the resources are depleting, they gain a few benefits from them. The

sea, sand, coconut trees, mangrove and swamps are their main coastal resources in the community. They have been living on the land for several years, yet they think the land is not theirs because they are migrants. According to them, they don't have the capacity to make decisions and plans concerning the use of the land, thereby poorly managing the natural resources.

RISK AWARENESS AND EMERGENCY RESPONSE

Although they have a fair knowledge of their local conditions, they could only name causes to only one of the conditions. Sea level rise, algal bloom (green-green), rainstorm, thunder storm, rocks closer to the shore which destroys fishing nets, have been the main threats facing this community. They lack educational programmes on risk awareness, have no capacity to reduce risk impacts due to their ignorance and no trained personnel to handle emergency situations. They receive virtually no information to prepare towards any emergency hence have never planned to deal with emergency situations. Moreover, they have no groups to help out during such emergency situations.

ECONOMY AND SOCIETY

Even though the main source of livelihood of the local economy (fishing) has been affected immensely by the emergence of the algal blooms (which according to the people, has caused the fisheries industry to be diminishing consistently in terms of resources), the community members are managing with the little catch they get from the sea. The youths still have the hope of economic conditions improving and have demonstrated their prepared to continue their stay in the community. Moreover, the community members help the marginalized group (the older people) with fish, but of late, they don't normally receive the help since the fish stock has dwindled in recent times.

ANLOMATUOPE

GOVERNANCE AND LEADERSHIP

This community had issues with chieftaincy some time ago, but the problem have been resolved. Though the dispute has been resolved, there still don't exist a chief or Tufuhene (caretaker chief). Instead, there are family heads (*ebusua panyin*) and community elders, who are respected in the community and lead the community in diverse ways to find solution to any problem. Whenever there is any information, these leaders gather the community and communicate accordingly. The assembly representative also communicates vital information to the community most of the time. The community members are only safe when they are at home, but are in constant fears whenever they go to their farms. This is because they do see strangers in their farms and at times hear about murder situations in some near-by towns. A case of human trafficking was once witnessed and reported to the police service by community members. In ensuring discipline and orderliness in the community, there has not been an instance where somebody has gone unpunished when they violate any of the existing laws or norms. This community usually solves their own problems, but once in a while they call on the police for assistance.

COASTAL RESOURCE MANAGEMENT

Most resources have been degraded whilst others though not in a good condition, still maintain and provide some little help to the community. For instance, the coconut destruction by pest is very disturbing but the coastal sea, though poor, supersedes that of the coconut due to increases amount of algae bloom in the marine waters. The beach sand is however in a better condition than the sea and the coconut trees. Coconut farmers applied fertilizers on coconut to restore its condition but proved futile. To wipe out the algae bloom, the community swept all the deposited *green-green* along the beach but to their amazement, the algae kept appearing at an increasing rate. As noted by one opinion leader, *“we thought the green-green were the same ones the waves wash back into the sea, so we decided to clear those along the beach but this does not work as they reappear the next day”*.

Land ownership and use is deemed fair as every clan in the community has its own land. However, the local chief is the custodian of all land and must be consulted even after acquiring a family lands from family heads. Moreover, all community members are allowed the right to use any resources that belong to the community. Those living along the beach have decided to resettle inland to avoid future sea disasters and few have already relocated. In the past, the beach was used as vehicular road, linking Newtown and Half-Assini but the road has been destroyed.

RISK AWARENESS AND EMERGENCY RESPONSE

The community is aware of the following threats in their community: hotter climate and malaria

outbreak, sea level rise, coastal erosion, flooding, and drought. Changes in rainy and dry season leading to changes in planting seasons are the major threat in the community. However, there are no educational programmes in the community to help with informing the community on the right information and means of adaptation. In reducing the impacts of some threats, the community organizes communal labour to create gutters/channels in order to avoid flooding anytime it rains heavily. Also, they try to replace the old nails and cement blocks which are supporting their roofs with new ones to prevent their roofs from being ripped off during rainstorms. They do this not in response to any information they receive, though they sometimes get access to such information from the radio (mainly). There are no groups in the community trained to handle emergencies.

ECONOMY AND SOCIETY

The community's sources of livelihood are mainly based on fishing, farming and trading. However, all the livelihoods are currently depleting, leading to quick but gradual decline in the economy of the community. The community says it is only an external intervention that can help move the economy forward. This is because no alternative livelihood has been identified neither are plan been discussed to search for supplementary livelihoods. The only person noted as marginalized by the community is one physically challenged person He is marginalized in the sense of not able to go fishing or rushing for fish due to his disability. Most youth are marginalized in the area of community decision making; they are not involved in most decisions made in the community.

JAWAY

GOVERNANCE AND LEADERSHIP

Residents look up to the assembly member, Chiefs and Elders and the current DCE of JDA who comes from the community to lead and find solutions to problems that may engulf the community. At the family level, family heads have the ultimate power for key decision making whilst teachers and religious leaders take charge of issues in the school and churches and mosque respectively. The Chief is treasured by most citizens. His influence was felt by the research team as they witnessed a well attended communal labour facilitated by the Chief. Almost all the time, the traditional authorities discuss issues with the entire community. The assembly representative also communicates with the community on regular basis.

Existing laws, norms and taboos are respected and are less broken. Apart from stealing of coconuts which is not uncommon, there are no known security problems. People generally feel safe and engage in their daily activities freely. Local chiefs and other leaders use available community platform to occasionally remind residents of local and national laws as well as norms and customs to ensure compliance. Offenders of any crime are dealt with by either the traditional authority or government security forces depending on the nature of the offense. For instance, persistent and consistent stealing of coconuts by an individual or groups of individuals is subject to banishment.

COASTAL RESOURCE MANAGEMENT

The coastal resources in the community include coconut, coastal sea, streams and lagoon (*Kolongolo azule*) rivers-*Kandiba azule* and *metele-metele* mangroves, sand and swampy areas. Coconut trees and houses that were at the shoreline have been destroyed by the sea. The lagoon, *kandiba azule* crosses the main street at rainy seasons and causes flooding to areas in and around the road-such as the market center. Aside the annual rituals performs at the lagoons and streams for the gods, no attempt has been made traditionally to maintain the above mentioned coastal resources. Nevertheless, refuses were kept at some strategic points to check erosion and help prevent flooding from the *Kandiba azule* and *metele-metele azule* lagoon but it proved futile.

According to community members, the Chief and family heads respectively are consulted for land acquisition through the stool and family lands. Amount charged differs and depends on an individual's bargaining power. When a family sells land, one-third of the proceeds are reserved for the stool upkeep. Land allocation is reasonable for most community needs and basic infrastructure. However, the untarred road to the community coupled with no pipe borne water and public toilets is a great worry to residents as it affects their general well-being.

RISK AWARENESS AND EMERGENCY RESPONSE

Community members are aware of threats in the community which include, flooding (experienced at rainy seasons), impact of sea waves (extends to town and destroy properties), and fire outbreaks that see houses being burnt. The last of such incidence occurred in May 2011. The flood is caused by the *Kandiba azule* river that extent to Anlomatuaape but causes for the other threats are not known. Children are said to occasionally get drowned in the *Kandiba azule*. According to them, rainfall pattern is no longer predictable, since it's now inconsistent thereby affecting fishing and food crops cultivation as crops like cassava no longer grow well in its usual season.

Information is received via radio, television and cell phones. The community however looks unprepared to handle emergency situations and do not mobilize resources and haven't taken any initiative to curb any of the above-mentioned threats. Meanwhile, the residents also know that flooding may happen during rainy season and when the lagoon is full and not opened to join the sea. Members of the community lamented that, even when emergencies are reported to NADMO officials in the District Assembly, nothing is done by their outfit.

ECONOMY AND SOCIETY

The main economic activities are farming and fishing. These occupations are practiced by both men and women but few women also engage in petty trading. However, fishing is at most risk due to *green-green* which is contributing to reduction in fish catch. On the other hand, farming is increasingly at risk due to the bad weather condition which has made the soil unsuitable for some species of cassava making their lives worse-off in recent times. Food crops are often destroyed by flood. Coconuts trees are constantly dying and attempt to get the new hybrid coconut is yet to materialize. Also, demand and supply forces are the only determinants of competition in the market which affect the prices of their produce leaving them at the mercy of the market forces. Most of the youth has already relocated and more are considering moving to urban centers of the country—Takoradi, Accra and Kumasi in search for better living standards due to the persistent hardship in the community. However, the old aged and the physically challenged are cared for by relatives and some individual philanthropist in the community.

METIKA

GOVERNANCE AND LEADERSHIP

There is no chief and the acting chief (Odikro) acts on behalf of the chief of Half Assini. The acting chief takes major decisions but ensure community members are always consulted. However, after consultation with residents, the chief of Half-Assini is made known of the decision before final decisions are made. The orders of the Odikro must be obeyed; those who refuse to obey such orders are summoned before the Half-Assini chief. He is thus very well respected. The Odikro is the main source of information from the traditional council. The assembly member is not resident in the community but mostly communicates to the people through the Odikro.

Most people feel safe and have no security threats; most social norms and laws are well obeyed. However, those who do not go along with such laws/norms are punished by the Odikro; refusal of which attract greater punishment from the Half-Assini Chief. For example, if the Odikro fines an offender an amount of money, the chief of Half-Assini will double the amount when the same offender is sent there. Hence offenders usually pay any fine demanded by the Odikro. The community is made of migrant (Ewes) and indigenes (Nzemas) but they peacefully co-exist; even though the migrants outnumber the natives. One norm obeyed by all fisher folks is the ban of fishing expedition on Thursdays.

COASTAL RESOURCE MANAGEMENT

The sea, stream, mangroves and sand are the main coastal resources in the community. The sea has been degraded by algae bloom (green green) whilst the coconuts along the beach have been destroyed by erosion and those inland destroyed by pest. Comparatively, the sea is good since it still provides some food for the people, unlike the coconut trees and piggery which are the other sources of livelihood for the community members. However, the community is actually doing nothing to preserve the coastal resources which give them food. They have not taken any measures yet to protect the other resources like the sand. The community does not have access to infrastructural development and have got no initiatives nor plans to address coastal resources issues.

RISK AWARENESS AND EMERGENCY RESPONSE

Coastal erosion and flooding are the main threats of this community. However, they suffer once a while from chicken pox disease and malaria. Amongst these, the people are aware of the causes of flooding with no knowledge on the causes of the others. They lack educational programs but

however take steps to reduce the effects of the flooding (risk). For instance, they try to open the lagoon to join the sea at certain times in the year, so as to prevent the occurrence of the flood, since flooding occurs as a result of the lagoon/river overflowing its banks during heavy rainfall.

Until recently, the community did not have access to electricity and so they could not listen to radio or watch television. They did not also get any information from people. They only wake up to see the harm already done. However, there is strong unity and residents always come together during emergency situations to find solutions. e.g. In the building of their bridge, they all contributed to buy wooden boards and nails and also organized communal labour to construct it when they realized that the raffia sticks that they used previously was not strong enough. There has not been a time when they have not come together to help in emergency cases. They help themselves and do not seek outside help. Previously, they sought help from the district assembly but the assembly did not respond to their call and this has led them to stop seeking for help from them or any other organization. There is no one individual in the community that has been trained to help handle emergency cases. There is no laid down plan to help with emergency situation, yet the entire community have developed a strategy of calling and shouting in times of emergencies to draw the attention of other community members who promptly respond.

ECONOMY AND SOCIETY

Fishing and farming are the main ways of earning a livelihood in the village. The discovery of oil in the coastal belt of the region has been cited by stakeholder as one of the causes of the declining fisheries industry, in that the oil rigs have attracted all the fish resulting in low fish catch and thus affecting livelihoods in the community. Algae bloom outbreak is also noted as contributing to the decline in fishing. Similar effect is felt by farmers as they having a hectic time planting crops. Crops are negatively affected by poor rains and bad soil fertility. However, fishing remains at risk most. Community members noted that economic situation get worse year after year at an unbelievably alarming rate. Unfortunately, they lack the capacity to move the economy forward and hope nature will restore the condition. Other hopes are the national government to create job opportunities in the community. No supplementary livelihood has been identified. Fish is mostly marketed in near-by communities and major market centers in the district though some buyers from different places buy directly from the community. At bumper seasons, some of the fish gets rotten and to avoid that, it is sold at a cheaper price which has a negative effect on income of fisher folks and the community at large. The physically challenged are the most marginalized in the community. Most members of the community render support to the marginalized by giving them fish or foodstuffs.

HALF-ASSINI

GOVERNANCE AND LEADERSHIP

The governance and leadership make-up of the community include; the chief, the chief fisherman (Apofohene), church leaders and the assembly representative. These leaders often seek the concerns of the community members. The traditional authorities do call community members to discuss issues; allowing members to share their grievances thereby addressing issues in a collective manner. Chieftaincy is well respected and leadership is strong. However, the Fante community indicated that the assembly member has never organized and communicated to them directly issues concerning the community. The chief fisherman has strong influence whatever goes on since he has lived as an experienced fisherman and has gained the recognition of all the fisher folks. He heads all the chief fishermen in the community; hence they always fall on him anytime there is a problem. They therefore do not have any leadership problems in the Fante fishing community of Half Assini.

Community members are scared of likely oil spills and the uncertainty surrounding compensation should there be such disaster. Equally disturbing is the frequent theft cases recorded in the community. These situations have generally made people unsecured. Residents revealed that the norms and taboos of the community which include: nobody should curse, nobody should fight, and nobody should defecate at sea shore, no fishing on Thursdays, and nobody should report an offense to the Police without contacting the chief; are not always respected since some do fish on Thursdays when there is abundant fish and others still defecate at the sea shore with the reason that there are no toilet facilities. However, local leaders often insure law enforcement; instilling disciplinary measures to curb such manners by sending offenders to the Chief's palace to be given the deserved punishment. Nevertheless, offenses beyond the jurisdiction of the chief; is reported to the police for appropriate measures to be taken.

COASTAL RESOURCES

Members of the community explained that, even though they get some little benefits from the coastal resources; the sea, sand and the lagoon are in deplorable state due to natural and human activities. They indicated that settlements, coconut plantation, fishing landing site and the parking ground for their canoes that were at the shoreline have been washed away. To protect the fisheries sector, the community is not allowing the use of light in fishing and hope all other fishing communities in the country will stop the bad practice to replenish fish stock. Though they have ruled against the dumping of refuse near the lagoons, not much people have adhered to that. The Fante community feels they do not have control over resource accessibility since they are migrants/settlers and live on temporal structures and are worried about the lack of electricity to

their location.

RISK AWARENESS AND EMERGENCY RESPONSE

Community members have average level of awareness of threats in their community. Notable among the mentioned threats were; ‘green-green’, high sea level rise, impact of oil rig of fisheries and the diminishing size of the lagoon. However, causes for most of the threats were not known. There are no educational programs to educate community members on risk knowledge neither are there plans to reduce the impacts of these risks. However, they lauded the efforts of Hen Mpoano as they frequently visit and educate them on emerging fishing issues. Changes in weather conditions are noted to have affected fishing activities. Regardless of their knowledge of the emergencies, community members are not prepared to handle such emergencies. Though experiencing greater impacts of sea waves at high tides, they are not prepared to move away from seashore explaining that their properties (fishing net and boats) would be stolen if they move away from the shoreline.

ECONOMY AND SOCIETY

According to stakeholders in the community, their main source of livelihood is fishing but about 10% of the populace engages in other livelihood sources such as, masonry, rearing of pigs and selling of firewood. The decreasing level of fish catch has affected economic lifestyle of the community and leaves the community in no hope. The youth of the community are looking forward for travel opportunities and return when they are financially sound. No alternative or supplementary source of livelihood has been identified even though the main economic activity – fishing is threaten by several factors.

The disabled and the old aged are considered more vulnerable in the community. Sometimes, the disadvantaged is made to help in mending of fishing nets and receive fish in returns from the net owners.

EKPU

GOVERNANCE AND LEADERSHIP

Ekpu, which is affectionately called '*the gateway to Half-Assini*' by the residents has the Chief and elders, assembly representative, unit committee members, family and religious heads as main leaders of the town. Prior to the amicable settlement of misunderstanding between the chief and residents, chieftaincy was least respected. The misunderstanding was facilitated by residents request for accountability and subsequent denial by the Chief. As a result, the family of the chief was prevented purchases of any item by residents and vice versa. As noted by an informant, '*the chief and his family were not allowed to make purchase from sellers in the community neither were items sold by the chief's wife purchased by community members*'. This continued until the intervention of JDA and other stakeholders in the district saw the peaceful settlement of the dispute. Currently, the traditional authority and assembly member discusses major issues with the community on regular basis before decisions are taken. The community is peaceful and regarded as a safe place to live by most people. Local laws are well respected and obeyed. There is no incidence of robbery, rape or other social vices. Unit committee members, assembly member, Chief and other local leaders continually ensure that laws are enforced. Not much reliance is made on outside sources of help for maintaining security.

COASTAL RESOURCE MANAGEMENT

Coconuts, sand, coastal sea and lagoons make up the coastal resources of the community. The two lagoons (*kalipnli and ekpokazule*) are in good condition as they are well maintained with no defecation, waste dumping or washing of chemicals. It also serves as source of water and food (fish). Most people also bath in the lagoons. Land is owned by seven families in the village with the Chief as the custodian. Respective family heads need to be consulted in land acquisition before final call is made on the Chief. Both parties charges different amount depending on the terms and agreements. Community members noted that some projects were not well located. For instance, the current primary school was sited at children playing ground (school park); so is the location of pipe-borne water which is seen by residents as not convenient. Extension of electricity to the new residential site and lack of a health facility is of prime concern to the community.

RISK AWARENESS AND EMERGENCY RESPONSE

Residents identified; flooding, sea level rise, changes in rainy and dry season and malaria as the threats in the community. Flooding is as a result of low lying land and unpredictable rainfall pattern. The unpredictable and the inconsistent nature of the sunshine and the rainfall has affected farming and fishing activities in various ways; threatening the sources of livelihoods. Members of the community seem somewhat prepared to handle emergencies. They mostly get information from television, radio stations (Ankobra FM) and cell phones. All mobile networks

work in the village though Tigo and MTN are better in terms of reception. Flooding is the main emergency in the community. However, it was made known that, NADMO officials are frequently seen in the community interviewing some flood victims but no support has ever been received.

ECONOMY AND SOCIETY

The economy of the community is getting worse over time with the main sources of livelihood been at risk. Livelihood is earned through farming and fishing. Whilst the natives-Nzemas are mostly farmers and occasional engage in beach seine fishing, the migrants-Fantis are predominately fishers. Some women also engage in petty trading. These main livelihoods are at risk from natural, social or economic hazards. The collapse of the coconut industry coupled with the dwindling fish stock has worsened the status of the economy. The community however believes it lacks the capacity to move its economy forward in a meaningful track. No supplementary or alternate livelihoods have been identified by any member or the community as a whole. As farm produce are traded with external markets, conditions of such market influence livelihoods. The youth do not feel they can grow in the community and are keen to relocate to urban centers of the country with the anticipation of better life. The aged are seen as most marginalized in the village. However, the community does nothing significant to help them as families are seen as the appropriate quarters to cater for the needs of the aged.

OLD EDOBO

GOVERNANCE AND LEADERSHIP

Leadership exists but it is weak. Local leaders do not communicate effectively with the community members. There is always misunderstanding because the elders would not accept the decisions of the youth and do not accept any points raised by the youth at gatherings and at times, the elders do not discuss issues with the community. The assembly representative does not communicate with the community but when the community extends an invitation to him, he does well to show up. In terms of security, the community sometimes experience theft cases. For instance, their electrical cables were stolen (by outsiders) which they could only report to E.C.G. and their assembly member of which nothing has been done till date. Nonetheless, most community members do comply with local and national laws since. Violators of any law or norms are severely punished by the local authorities.

COASTAL RESOURCE MANAGEMENT

The main coastal resources are the sea, beach sand, swamps and coconut trees. Though these resources have deteriorated over the years, the community still derives some benefits from them and is valued by residents. To control coastal erosion, sand winning on medium and large scale by individuals and contractors are not allowed. However, indigenes are permitted to win sand for rehabilitation of their houses. Apart from this, there are no ways that coastal resources are preserved to be used in the future by other generations.

Family heads and the chief take charge of lands in the community as land are either family or stool owned. There are no problems with land allocation for community uses and individual purposes. Where a family land is to be used for community project, the land owner and if there are coconuts on the land, the coconut owner is also compensated before the project is commenced. Aside the ongoing construction of a KVIP (public toilet) and a clinic, no other essential infrastructures exist to promote human well-being. Changes in shoreline are indicated by the community with the increasing erosion and reduction in beach sand. Areas which served as football playing field along the beach have been eroded by erosion; so is a road that connected to Beyin.

RISK AWARENESS AND EMERGENCY RESPONSE

Heavy storms, flood, sea level rise, '*green-green*' and erosion have become major problems in this community. There are no educational programmes to help promote potential risks and threats. However, the community organizes communal labour to fill gullies created by erosion as a means of hoping to reduce the impact of erosion. Such activities are always well participated by the entire community. The economy is weather dependent and therefore changes in weather adversely affect socio-economic conditions in the community. Unpredictable and inconsistency

in rainfall pattern, excessive sunshine have destroyed most crops especially cassava. New variety/species of cassava is being tried by a section of farmers. Again, due to the weather changes, farmers plant their crops earlier than usual to ensure earlier harvesting. This is done to escape the effects of flooding; which period of occurrence has been noted by the community. Most people living in flood prone areas have planned to relocate to reduce the impact of the risk on their lives and property. All the above means of adaptation are by means of experience and not response to information received from any sources. Basic information is received via radio and television. The community has no plans to handle its emergencies and has received no training on emergency handling.

ECONOMY AND SOCIETY

Members of the community derive their livelihood mainly from coconut farming, fishing and coconut oil production. Some of them however engage in other economic activities such as piggery, cassava farming and trading. Currently, all the major livelihood sources are at risk especially fishing, with the presence of the algae bloom (*green-green*). Poverty therefore is on the ascendancy, a justification of their plea for the assistance from the government. To help revive the major livelihood sources; farmers have planned of applying fertilizers to their coconut trees to improve the yield. The community as a whole also plans to use their stream as a tourist site as well as for aquaculture purpose. These, they believe, will help change economic situations of the community. The youth have granted themselves some time to leave the community if economic conditions do not change for the better. The only blind man in the community is seen as very marginalized. As such, he has been offered the job of selling their pipe borne water so he could have profit as commission to cater for himself.

NEW EDOBO

GOVERNANCE AND LEADERSHIP

It was revealed that the governance and leadership make-up of the community include; the chief and his council of elders, chief fisherman and council, religious leaders and the assembly representative. The chief and his elders including the other leaders of the community always discuss issues with the community members and allow them to share their grievances thereby addressing concerns of community members amicably. Also, based on the respect for the authority of chief and his elders, members of the community comply with the local and national laws as well as norms of the community. Communal labour initiated by the chief is always well attended by residents.

As noted by the chief and his elders, among the norms and taboos of the community include; women not allowed entering the lagoon on Wednesdays and women during their menstrual period not permitted to pass by the shrine. When any of these norms are violated, the gods must be pacified by performing some rituals. Residents are safe and go about their daily activities freely with no security problems. However, they sometimes experience theft cases particularly concerning their coconuts.

Most offenses committed within the community are handled by the local leaders with few ones that require national laws for punishment reported to the Police Service.

COASTAL RESOURCES

Coconuts, sand and the sea are the major coastal resources in the community. Most coconuts that were located the shoreline has been destroyed by erosion. The coconuts in particular have been degraded by coastal erosion and pest. The sand is however in better condition compared to the coconuts as sand winning is not allowed even though community members believe sea erosion has reduced the sand at the beach. Algae bloom is also seen to be affecting the sea. Though their resources are not in relatively good state, it remains cherished due to the benefits derived from them. As a way to maintain the remaining sand at the beach, sand winning on large scale is not allowed. This is also to serve as a defense mechanism. The sand is believed to block the sea from overflowing its banks to the neighboring settlements. Most lands belong to families and such family heads are consulted in land acquisition. Land allocation for varied uses is adequate and fair. For whatever purpose, coconut trees within the agreed location/area would be cleared to give way for the new development once the coconut owner is adequately compensated.

RISK AWARENESS AND EMERGENCY RESPONSE

The community is somewhat aware of some natural and environmental threats in their area. These include; algae bloom (green-green), high level of sea and heavy windstorms. They

explained that, sea level rose dramatically since the inception of the *Osagyefo Badge* at Effasu and the oil rig. However, causes for the algae bloom were attributed to natural phenomenon. The entire livelihood is weather dependent and because of the changed nature of the weather, the sources of livelihood are at risk. There is also no formal or informal education on risk management. The community is not prepared to handle any emergency situations. No step has been taken or even discussed on existing threats. There has been no training for the community or some members on how to manage disasters. Though flooding often occurs, it was only in 2009 that support was received from NADMO.

ECONOMY AND SOCIETY

The strength of the economy as noted by community members rest on farming and fishing. These two are the main occupations in the community. However, the unfavorable nature of the weather had seriously declined their source of livelihood leaving members of the community no hope for the future since their sources of livelihood are weather dependent. Residents only pray and hope that, the Bonyere Gas processing plant project may be of benefit to them in terms of employment.

The disabled and the aged who are the marginalized in the community are not well catered for by the community. They only get help from their relatives. Residents indicated that, *“if the disadvantaged don’t have relatives to help them then, they are left to suffer”*.

ATWEBANSO

GOVERNANCE AND LEADERSHIP

In ascendancy, the Chief and elders, assembly representative and youth association leaders are considered principal leaders in the community. The Chief is very respected and seen as a mentor by the younger folks. The leadership of the youth in particular uses the office of the Chieftaincy to mobilize people for most communal activities especially general communal clean ups. It was noted that issues of great significance are sometimes made known to residents by the traditional authority before final decision are made. The assembly representative, though non-resident in the village, does absolutely well to promote two-way communication and the gesture is well cherished by most people.

Security in the community is viewed from two angles. On the part of citizens, it is considered to be fairly good. However, that of the major economic property-coconuts is lest to be deserved. There is rampant stealing of coconut by people in and outside the community. Customs, norms and taboos are observed and deviancy is punished based on laid down procedures.

Most of the time, people feel safe as there are no security threats coupled with nearly total compliance with local and national government laws and norms. To ensure safety of residents and enforce laws and norms, the leadership of youth association in group effort with the traditional authority and other concerned citizens voluntarily acts as watchdogs for human security. Offenders of all forms of laws and norms are made to face the music. Outside sources of maintaining security is not of much relevance and reliance as residents remain calm and prefers issues or disputes settled by traditional authority.

COASTAL RESOURCE MANAGEMENT

The coastal resources that the community can boast of include; lagoons-*Anyiko and Aleshala, Aka-mansah*, sand, coastal sea, wetlands and coconuts. The shoreline was dotted with coconuts and few houses but has been destroyed by sea erosion. It is believed that the current location of the community used to be the farm land of the previous generation and that their settlements were destroyed by coastal erosion and had to relocate to the present state.

Even though the coconuts are badly degraded, the two lagoons are in good shape due to personal attitude of residents to keep them clean and neat for greater benefits and help conserve nature. Both the young and old swim in the lagoon. As such, waste dumping, washing of chemicals and other forms of degradation are not permitted in and around the lagoon. People are not allowed to wean sand from the shore or engage in any activity that has the tendency of degrading the lagoons and river.

There are family, individual and stool lands. The Chief remain the overall custodian of the land.

Land allocation is considered fair and satisfactory for both individual and communal usage as both parties get access to acreage of land desired. Existing projects such as the basic schools were properly located. However, what residents admit as affecting well-being is the non connection to national electricity grid, lack of pipe-borne water, market, health post/facility and community center which are considered essential for the safety and comfort of the citizenry.

RISK AWARENESS AND EMERGENCY RESPONSE

Community members know and are aware of malaria, flood, sea level rise and sea erosion as risk that affect well-being. The flooding, they explained, is experienced by residents to the north of the community as it is believed that side of the land is low-lying. Another contributory factor to the flood is the broken down *culvert* which was created during the main road construction. Usually, flooding occurs almost every year at rainy season. However, the impact is greater in intervals of seven years such as that of 2002 and 2009. It remains the main emergency situation in the village. After every flood incidence, victims are offered temporary housing by friends and relatives. Malaria is attributed to mosquito bites.

Community members however do not mobilize resources to address any of the situations noted and have not received any support or training from any organization. Community members emphasized with sadness that, they visited NADMO after several flood occurrences to seek help but received no support.

ECONOMY AND SOCIETY

Farming, fishing and trading are the sources of livelihoods for members of the community. However, the fishing and farming are mostly practiced by men whilst the latter remains the concentration of women. Majority are engaged in one livelihood with few doubling and regarded as farmers and occasional fishers. Coconut is the main cash crop cultivated but mixed farming is practiced by most farmers with focus on cassava, plantain and maize. About 90% of residents are estimated to be farmers' while the remaining populace engaged themselves in the fishing activities. All livelihoods are at risk. Coconuts are rapidly been destroyed and has been attributed to offshore oil production by residents. Food crops are constantly been destroyed by flood. Likewise, fishermen attribute green-green to oil production which is resulting in declining fish stock. Petty traders complain of low sales due to declining living standards facilitated by poor livelihoods. The sale of farm products depends on external market forces such as economic conditions in Nigeria as they currently remain the main trading partners in terms of coconuts. The youth have lost confident in the local village economy and seeking traveling opportunities to other African and European countries. The aged are the most marginalized in the community. They are taken care of by their respective families and neighbors also help them in terms of

sweeping, fetching water and other household chores.

AHOBRE 1

GOVERNANCE AND LEADERSHIP

Leadership in the community (headed by the chief) is something the community members are proud of due to its functionality and the ways issues are discussed in the community. But unlike the chief and elders, the assembly representative does not usually meet the community. However, they explained that this has been a normal situation over the past years, with the present assembly representatives even proving more functional than the previous ones due to the fact that the area councils are now efficient.

The security of the community has got to do with rampant theft cases. Apart from the theft cases, most of the local laws and norms are obeyed by the community members, hence there is virtually no need for external source of help to ensure security. Most theft cases are handled by local authorities.

COASTAL RESOURCE MANAGEMENT

Available coastal resources are the coastal sea, sand and coconuts. Though most of the coastal resources are at risk of depleting, the people explained that they still have them as their sole sources of livelihood. They have however stopped contractors who come into the community to win sand on larger scale, to help them protect their property for the next generation. Even though they are trying to protect their coastal sand, they indicated that if they are to use it for developmental projects for the community, they wouldn't mind winning the sand on a larger scale. Likewise, coconut owners are willing to have their coconut trees destroyed to give room to developmental projects. The people of Ahobre No.1 are all migrants who have lived in the community for several years. Though the land belongs to the Nzemas, it has gradually become theirs in that it is managed by them. Land acquisition is not a big problem in the community. Should there be a new fishermen who would want to settle, they only apportion some available areas to them, only that should the area be within the coconut trees, they may have to compensate the coconut owners; who are mostly the indigenes.

RISK AWARENESS AND EMERGENCY RESPONSE

The following were identified as natural and environmental threats: sea level rise, heavy rainfall, green-green, hotter climate, low fish catch and burnt coconut trees (bush burning). The community is not embarking on any step to reduce the impacts of the threats. Even though, the

community members do not have good plans to handle emergency situations; they sometimes mobilize resources to help themselves. They also get information from radio stations and on television about national emergency situations. There are no groups that help out on emergency situations. The community has witnessed one-day training on fire-fighting but capacity remains low. The training, they explained, was facilitated by officials of the district assembly. It focused on how to use the palm branches to fight fire in times of fire outbreak but people were not selected for further training on how to fight fire in case there is fire outbreak. Though there have been observed changes in weather conditions, the community have not changed its socio-economic activities.

ECONOMY AND SOCIETY

The main source of livelihood which is fishing had seriously declined due to the impact of the algae bloom (*green-green*) and light fishing practiced by some fishermen. Farming, which is next major livelihood source, is also at risk due to the effect of unpredictable rainfall pattern.

However, the community has no plans on how best to move its economy forward and have not initiated any discussion to identify alternative livelihoods or engage in ways to improve the livelihood of the community but only depend on the government to come to their aid. According to the youth of the community, they may travel to look for better jobs but would come back when they are better-off. Sometimes, the disabled and aged (who are actually the marginalized group) get help from community members. Specifically, people offer them fish whilst others run errands for them. At certain periods, the disadvantaged (disabled and aged) get help from the community.

AHOBRE 2

GOVERNANCE AND LEADERSHIP

This community recognizes the chief, elders and assembly representative as the key leaders in the community. There are no leadership problems and these leaders are well respected by most people and their influence is well felt in the community. The traditional authorities do discuss issues with the community almost all the time since their chief always wants people to know what is happening. Additionally, the assembly representative also does communicate with the community on various issues and also informs them of discussion that took place at assembly meetings. Like leadership in the community, there are no security problems; people care for themselves, and there is a collaborative effort by all stakeholders in the community to overcome problems in the community. On laws and norms, fishing is not allowed on Sunday; fetching water from the stream is a taboo on Wednesday and Thursday is observed as non-farming day. Defecation at the beach is prohibited and offenders are fined an amount of GH¢5.00.

COASTAL RESOURCES MANAGEMENT

The main coastal resources are currently not in a desirable state. They include the sea and its resources, sand, crabs and coconuts which are all not as good as its conditions were some years ago. Comparatively, the sea and coconut are in a very poor state and the community claims it is difficult to rate one above the other. There are no ways of ensuring the generational usage of the available coastal resources. Whenever a meeting is held to discuss and address coastal issues, nothing concrete is decided; hence, no initiative has been taken. Though most discussions have not yielded any fruitful results, the community was able to relocate those whose houses were flooded during the high tide to inland areas.

On land ownership, there are family, individual and stool lands, but the chief is the custodian of all lands. As such, family heads and other land owners play key role in land use decision making at both individual and community scale.

Most activities that prevailed at the beach in the past have ceased. For instance, children used to play football at beach about 25 years ago and vehicles used to ply the shoreline. Added to that, United Africa Company (UAC) had a warehouse close to the shore but these have been washed away by the sea.

RISK AWARENESS AND EMERGENCY RESPONSE

Some threats mentioned by residents were cholera and malaria outbreak, flooding, high tide, hotter climate and fire outbreaks. The causes to disease outbreaks were known but did not have any idea as to why the other problems occur. Community members revealed that there was a

group that was formed to fight fire but the members are dead. Also the chief of the community sometimes called community members to educate them on various risks. At certain times, personnel from the Ghana Health Service visit the community and educate them on various health issues. The community noted their observed changes weather condition such as erratic rainfall pattern as compared to previous years and hotter weather experienced in recent times. There are no ways of getting local emergency information. Even though some general information are heard on the radio, there is difficulty in getting access to a radio station---one has to erect a long pole before getting access through to a radio station. There is no group to help out in emergency situations but community members organize themselves mostly through communal labour to help in such conditions. However, in few instances, some churches help out whilst NADMO once offered flood victims some relief items; which residents claim were not enough. Neither the community nor any of its members has ever received training on safety or emergency situation handling.

ECONOMY AND SOCIETY

The main livelihood sources in the community include fishing, farming, animal husbandry, oil processing, and petty trading; of which most of the community members engage in two. However, the primary sources are fishing and farming. All these livelihoods especially fishing are at constant risk of depleting. Decreasing living standard has been the norm in this community for the past few years and not seeing any improvement. Some residents have therefore formed an association and waiting on government to assist them to achieve their aim. Others are looking up to government to create job opportunities for them before they can even make a living. Fish farming is seen as a possible supplementary livelihood in this community to which members present indicated that ‘ *the Hen Mpoano team visited and assured us of a start-up capital for fish pond but the promise is yet to materialize* ’. It is believed that most often buyers come with a set price and seller have limited options. A significant number of youths interviewed foresee themselves being compelled to move outside the community in few years as things are getting worse over time, but few others want to stay believing that things will get better. The most marginalized people in the village are the drunkards, mentally deranged, and the blind. These people are not involved in community meetings at all let alone to talk of decision making. The community does not help the marginalized rather some individuals offer them help once a while.

EGBAZO

GOVERNANCE AND LEADERSHIP

In Egbazo, the local Chief and his council of elders and family heads are the main leaders in charge of the community. The assembly member who stays in another electoral area is not regarded as a major leader as his presence / leadership is not felt in the community. As noted by the Chief “ *we don’t have an assembly member, after we voted for him to win the elections, he hasn’t returned to say thank you to me or the community*”. This was confirmed by most people and their utterances clearly showed disappointment in their assembly representative. Chieftaincy is somewhat respected. Though the traditional authority mostly discusses relevant issues with the community, residents claim their views are often not considered as the Chief usually wants his decisions accepted and respected.

The fear of being punished makes most people to ordinarily obey laws and norms in the community. Security of life and property was not a problem until recent frequent incidence of household items and coconuts stealing gained much weight. This has been attributed to effects of declining livelihoods. Laws are repeatedly enforced by parents, family heads and traditional authority. External security agencies are used when attempts to settle cases/disputes or ensure orderliness by the Chief and his elders prove futile.

COASTAL RESOURCE MANAGEMENT

Coastal resources in Egbazo include; mangroves, lagoons-*Domunli and Menya engo*, sea, coconuts, sand. The domunli lagoon and mangroves are in good shape due to the importance attached to the resources which are well known by most community members especially the Chief and elders. By traditional norms, people are not allowed to cut mangroves or win sand at the coast without permission by the Chief and elders. For instance, permission may be granted for few mangroves needed to build or rehabilitate a building. The mangroves are regarded as being preserved to benefit the next generation. Residents noted that the mangroves serves as breeding grounds for some fish species and has the capacity to increase fish catch. As such, people caught cutting mangroves are given the right punishment.

Land ownership rest on the Chief and heads of the seven families. These owners need to be consulted in land acquisition with the Chief as the main custodian of the entire community land. Land acquisition is considered fair. In the past few years, land was not sold to natives but this changed after the production of *lay-out* by the Chief. Upon the sale of land by a family or individual, an agreed percentage is reserved for the upkeep of the stool.

However with infrastructure development, the current basic school is perceived to have been wrongly sited as the area floods each time there is heavy rainfall. The lack of pipe borne water coupled with bad road network, unreliable electricity due to frequent breakdown of electricity

transformer and problems with television reception hinders general living in the community.

RISK AWARENESS AND EMERGENCY RESPONSE

Community members identified; thunder storms, rainstorm, eye problems and sea level rise as threats but could not mention/explain any cause to the threats. However, they believe the area is a low land and it's basically prone to flood. The floods, they reiterated, usually occurs around June/July and destroys many household properties but the occurrence is noted with great impact every seven years.

Though residents are aware of the risks, they are somewhat prepared by using sand bags to prevent erosion and have also constructed gutters to allow easy flow of water during raining season into the sea to reduce the flooding menace since it remains the only emergency problem in the community and normally happens before an action is taken at the community level. Interestingly, when the rains are over, nothing is done to reduce the flood impact. However, no project has been initiated to help lessen the impact of the flood. Though external help is always sought from NADMO in particular, no support is received. There were instances where pictures were taken at a cost by the community members to NADMO office in the District Assembly, but not on a single instance has assistance been received. Meanwhile, the inconsistent weather and unpredictable rainfall pattern for example has diverse effects on the livelihoods of the people since farming and fishing are weather dependent.

Residents noted that information on local emergency is not guaranteed but those on national issues/ emergencies are received through the local radio station-*Ankobra FM*. It was made clear that if nothing is heard from Ankobra FM, then the likelihood of knowing what is about to happen is very slim. Information is also gotten from television stations and the cell phone. An opinion leaders emphasized, *'masa, let me tell you the truth, Ankobra FM is the main source of information and sometimes cell phones and TV stations''*.

ECONOMY AND SOCIETY

Farming and fishing are primary and secondary occupations respectively. Fishing, as indicated by fisher folks and even the farmers is been affected by algae bloom (*green-green*) which cause remain unknown to the community. Also at risk is farming; as the land is not fertile with most food crops cultivated usually destroyed by the hot weather. The community therefore regards their economy is not getting any better as sees itself as not in the position to move its economy forward. This is because the various threats on livelihoods are seen as beyond their control. Equally attested to this is that almost all the youth feel they cannot grow or live a meaningful life in the community and opted moving to urban centers in the country as the prime way of making good living. However, the aged for instance are given the necessary attention by their family members and other neighbours when possible.

OLD KABENLASUAZO

GOVERNANCE AND LEADERSHIP

Though the chief is respected and the community members are involved in discussions by the traditional authority, the assembly member is not seen as a leader by residents as he does not communicate with them. This, they argue, is because he stays in another community. Almost every member of the community appreciates and attends to gatherings and meetings initiated by the Chief. Youth leaders and religious leaders are also recognized as key leaders in the community. People feel free in the community and go about their work without any hindrances. Most people explained that they usually sleep at the beach (shore outside their homes) and feel very comfortable as no theft cases have been recorded.

Chiefs and elders most often ensure that laws and norms are followed. Individuals who go against laws/norms and found guilty are punished by the chief. Whenever, in situations beyond his power and control, the Police Service is called for the necessary action to be taken.

COASTAL RESOURCES

Coastal resources in the community include the sea, sand, stream, lagoon, mangroves and coconut. There also used to be buildings on the shoreline covering about 50 meters which have been washed by sea erosion. According to residents; the stream, lagoon and the mangrove are in good shape whilst those in bad shape include the sea, sand and coconuts. As a way to protect the mangroves, community members are not allowed to cut mangroves. The community lacks planning, initiatives and infrastructure development but community members have adequate land for whichever purpose. There are no complaints about access to land for communal and individual usage. The only infrastructure in the community is the borehole. This really well-being of residents. The location of the borehole however was done in a wise and thoughtful manner, using traditional understanding of how coastal resources behave. It was sited behind the lagoon because community members saw the likely intrusion of sea water into borehole should it be located within/near the beach. The community has never taken an initiative to address its coastal issues and to plan for future uses.

RISK AWARENESS AND EMERGENCY RESPONSE

Community members identified as natural and environmental threats the following: hotter climate, heavy rainfall, green-green, high level of the sea, low fish catch, burnt coconut trees, famine and rainstorm. There are no formal or informal education programs in the community to promote risk knowledge and help with adaptation. Among the steps the community is taking to reduce the impacts of the risks include putting cement blocks on top of their roofs to prevent it from being ripped off; others using ropes to tie thatch of their roofs to prevent it from being removed by the windstorms. They come together during emergency situations especially

rainstorms to help each other; especially those affected by such disaster. The weather is said to have changed as there is abnormal rainfalls leading to flooding from the river/lagoon which destroys farms and buildings. However, the community is not prepared to handle emergencies. They do not get enough information locally explaining that, nobody communicates to them. There are no groups that help out in times of emergency situations.

ECONOMY AND SOCIETY

Farming, fishing and trading are their main sources of livelihood in the community. However, heavy rainfalls which sometimes cause flooding have destroyed most farmlands. The high level of the sea and the increasing levels of *green-green* in the sea leave the entire economy at risk. Based on this, the youths have planned to move to other places should economic and social conditions remain unchanged. Most community members are gradually moving to new settlements (New Kabenlansuazo) as the economy is getting worse over time.

BONYERE

GOVERNANCE AND LEADERSHIP

Though chieftaincy exist in the community, litigation issues as to whom should have ascended the throne, has divided the community such that, the chief is not respected in the community. Meetings initiated by the Chief are attended by estimated 40% of the populace. There are three assembly members of which only one support the current ruling chief. This has also caused some tension in the community. However, anytime they come together to organize communal labor, the community members do attend. In terms of transferring information to the community, each assembly member does well to communicate with his electoral area. However, some sections of stakeholders regard them as inefficient and ineffective. Even though people generally feel safe to engage in their daily activities without fear, there are some recalcitrant individuals who invade coconut farms to steal coconut. Furthermore, a taboo which prevented people from fishing on Tuesday is no longer respected. Also, another taboo which disallowed people from fighting at the well which used to be closer to the swamp (*where it was believed if you fight, you will have to pacify the gods by sacrificing a monkey*) seems not to be in existence.

Though the Chief and other local leaders used to settle/handle most offenses/cases in the community, this is ceased. Currently all such cases and handled by the Police Service. This is because the chief is not well recognized by most community members. Community members however stated that, when someone breaks a taboo or a norm, he/she does it at his/her own peril since the person will be punished by the gods.

COASTAL RESOURCES

The sea, sand, coconut and cassava are the coastal resources recognized by the community. Prior to increased coastal erosion, the beach was characterized with houses and coconut trees. Some farmers also cultivated groundnuts at the shoreline and vehicles equally used the beach as road.

Land is owned by individuals and family members; however the chief is the over-all custodian of all lands. Even though they do not have laid down plans with regards to the use of their coastal resources, there is a good land use plan as certain portions of the available land has been earmarked for new projects in the near future.

RISK AWARENESS AND EMERGENCY RESPONSE

Community members have average level of awareness of the threats in their environs and causes to some few threats. High sea level rise, heavy rainfall, green-green, hotter climate, diseases-malaria, low fish catch, burnt coconut trees and famine were the main threats identified. They noted that though do not have any formal or informal programs existing in the community, representatives from the district assembly advised them to stop sand winning about two years

ago. However, there has been inconsistent heavy rainfall and heavy wind storm in the community collapsing buildings and causing erosion in the community. The entire economy is regarded as weather dependent. Sand winning at the shore has been stopped to preserve the coastal resources for future usage. Even though there is no plan, members of the community do mobilize themselves in terms of emergency situations to deliberate and share ideas about how to tackle the situation.

ECONOMY AND SOCIETY

Farming, fishing, coconut oil processing and piggery are the sources of livelihoods for the community. Few people engage in more than one source of livelihood to improve their living. It was revealed that coconut and fishing used to generate high income in some time past but the situation has seen a massive twist. This is because the coconut trees are not yielding the expected quantity whilst fishing is also not recording the appropriate catch. A situation attributed to *algae bloom* in the marine waters. The economy is regarded as seriously declining by all stakeholders. Community members are expectant of job opportunities in the proposed oil refinery project in their community. This is seen as a major way to stop the youth from leaving the community. Others are hoping that they will be adequately compensated when their coconuts are destroyed to make way for the project; so as to use the proceeds to engage in diverse business ventures to improve livelihood.

EZINLIBO

GOVERNANCE AND LEADERSHIP

The main key leaders in the community are the chief and his elders, assembly representative and the various gang leaders. The community has been zoned into 'gangs' and each gang have its own leaders. Interestingly, all the gang leaders are males and assistant are females. A greater percentage of community members respond to any gathering that the chief calls. The assembly member at most times organizes community members to share ideas, discusses pertinent issues and communicates issues from assembly meetings. At such meetings, community members also make their concerns known to the assembly representative who in turn informs authorities at the district assembly. Though community members feel safe to a larger extent, they remain a bit unsafe due to the occasional theft issues in the community. Most often, violators of local laws and norms are punished appropriately by the traditional authorities hence most of them normally obey the laws and norms in the community.

COASTAL RESOURCE MANAGEMENT

The sea, sand, marshy area, coconut, mangroves and lagoons are coastal resources found in this community. The lagoon is very well kept and swimming is a delight to watch in the lagoon. The mangroves are also relatively in good shape, while the sea and the coconut trees are badly degraded. There are family lands and community/stool lands. Those who need lands have to see the head of the family, who in turn send some amount of money and drinks (schnapps) taken from the one who seeks the land to the chief. They have restricted the use of the lagoon in such a way to preserve it for the future generation. Formerly, coconuts lined up the shoreline but have been destroyed by sea erosion. Cemetery close to the beach is gradually being destroyed.

RISK AWARENESS AND EMERGENCY RESPONSE

Coastal erosion, sea level rise and flood are the threats faced by the community. At heavy rain, erosion creates gullies in the community. They have no ideas why these happen the way they do and have never been educated on the risks and the way to avoid them. To check erosion, they have been putting heavy stones in the erosion pathways. In addition to this, they have been dumping refuse at these areas as well, but anytime there is a heavy downpour, the refuse are washed away. The rainfall pattern is now unpredictable and has become a danger to farmers as their crops are frequently destroyed. There is no access to information concerning their local threats and risks. They only use experience to determine how the weather change is going to be. However, information on national issues is received from television and radio.

ECONOMY AND SOCIETY

The main sources of livelihood in the community are farming, fishing and petty trading with farming being their major source. Others also operate fish ponds and piggery. However, algae bloom (green-green) has made fishing activities unappealing. Farming activities, as revealed by farmers, is not providing any meaningful returns. The local economy is seen as seriously declining. Unfortunately, community members declared their inability to change their economy in a positive direction.

Two separate views were noted from the youth. A section of the youth has planned not to move to any place since they were born in the village and must stay to ensure things get better. However, some have already moved to Prestea, Takoradi and Accra to seek better economic conditions and others intend joining this group.

ALLENGENZULE

GOVERNANCE AND LEADERSHIP

Leadership exists in the community and organization is very strong despite the fact that the assembly member does not perform his duties in the community. Community members showed great sense of unity at all times and respect the chief. Hence anytime there is a problem in the community, they fall on the chief and elders, and sometimes, church leaders and family heads in the community to find solutions. However, the assembly representative is considered out of the leadership box since he has never visited the community to either inform or discuss issues with them. Community members feel safe and protected, obey local laws and norms, respect traditional authority and actively take part in communal labour.

Almost all issues are dealt with locally in such a way that those who violate important laws are fined. But should an offender fail to pay, he/she is sent to the police; which seldom happen. However, when issues become extra difficult and when the laws broken are national laws, it is made known to the police for necessary actions to be taken.

COASTAL RESOURCE MANAGEMENT

Sand, sea, stream, coconut and mangrove swamps are the main coastal resources in the community. All the coastal resources are however degrading. The coconut trees are dying; the sea is currently full of algal blooms; the sand at the sea shore has reduced; whilst the stream has been filled with sand due to running water washing sand into the stream. With all these threats to the health of the coastal resources, there have been no actions or steps taken to revive the resources for their future use. Land is owned by families and the community (stool). The community expressed its readiness and willingness to provide land for communal usage or projects that will benefit the community.

RISK AWARENESS AND EMERGENCY RESPONSE

Coastal erosion, rainstorm and flooding are the main natural and environmental threats that the community is facing. Heavy rainfall which causes farmlands to be submerged and leads to the destruction of food crops and buildings is one of the main causes of flooding and erosion. However, no educational programs exist in the community to help them with adaptation and minimization of risks. For instance, nothing has been done or planned to curb the impact of flooding and sea erosion. For rainstorms, most residents have put heavy stones on their roofs to prevent them from being ripped off. As pointed out by most community members, rainfall pattern has become very inconsistent. This, according to the farmers has changed planting and harvesting period. The change has affected food production in the community. Although food

production has been affected as a result, they have not entered into any different socio-economic activities but they have thought of changing to rubber and oil palm plantation.

The entire community has never mobilized resources or its members to combat local emergencies though sometimes they get information from some radio stations and also by studying the weather changes. No one in the community has received training from any sector to handle emergency situations.

ECONOMY AND SOCIETY

Most people usually depend on a single occupation/job such as coconut or cassava farming. However, these major occupations (cassava and coconut farming) have been adversely affected by weather changes and incidence of pests, thereby leading to low productivity. This has led to poor well-being of community members and most of them noted their inclusion into the poverty cycle. Most farmers are considering applying fertilizers to their crops and possibly clear their coconut plantation to make way for oil palm plantation. This is seen as a way of moving the economy to a good state. The youth are also considering moving to perceived economically better communities in the country. A physically challenged electrician is seen by most community members as the most marginalized in the community. The community does absolutely nothing to help him.

TWENEN

GOVERNANCE AND LEADERSHIP

In Twenen, key leaders are the Chief and his council of elders and assembly representative. These people lead the affairs of the community and are charged to find solutions to general communal problem. Chieftaincy is respected as it is regarded as a necessity for community development. Issues that need to be communicated to local government are channeled through the assembly representative. Traditional authority also discusses key issues with community members. People illustrate their respect for the local leadership by according them the due recognition and obeying social norms and rules. Most community members stay in the community without any fear but few are recently said to be disturbed by thieves. To ensure that local and national government laws are respected and enforced, the chief and other traditional leaders frequently remind people of the existing laws, norms and customs. For instance; land is not sold to individuals under age 18, farming is not allowed on Wednesdays, buyers of coconuts are to take waybills for their purchases or be seen as thieves and punished as such. etc. Most people obey local and national laws as they fear to have problems with security agencies. Social norms and taboos in particular are well obeyed. Any person or groups of persons who violates a law or norm is appropriately punishment.

COASTAL RESOURCE MANAGEMENT

Available coastal resources include coconuts, sea and its resources, sand, mangroves and streams (*Twenen anloanu, Ahui and Sunzunli*). *Twenen anloanu* is a source of drinking water to most people. As such, it is well preserves and maintained to ensure its health condition is not destroyed. People who cut or attempt to cut mangroves or win sand at the beach are dealt with by the local authorities. Due to local regards and norms for the mangroves and stream, they are in relatively in good shape. The coastal sea and coconuts are however seen as being degraded due to the perennial occurrence of algae bloom in the marine waters and impact of Cape St. Paul Wilt diseases respectively. Again, as a way to maintain the streams, communal labour is continuously organized to clean the surroundings of the stream and dumping of refuse and defecation are strictly prohibited. Land ownership is mainly by the stool. However, the Town Development Committee take charge of all land issues in the community and land allocation is deemed appropriate for general community needs. Though the community has market and clinic, the absence of a potable water source is of great worry to residents; evident by the compelled usage of the stream as drinking water.

RISK AWARENESS AND EMERGENCY RESPONSE

Major threats by faced the residents are hotter climate, changes in rainy and dry season, erosion and impact of sea waves at high tide. The erosion has destroyed many houses and created gullies and paths through which rainy water passes and enters the sea. However, no cause(s) have been

named or identified for any of the threats. Equally non-existence is formal or informal education programs to promote risk knowledge and help with adaptation. As such, no step has been taken or even discussed by the community. This weather is well observed and its change is noticed by the unpredictable rainfall pattern which affects fishing and mostly importantly farming. However, socio-economic activities have not been altered due to the weather changes.

The community is not prepared to handle emergency situations. House burn is the main emergency that occasionally happens in the community. However, no information is received on local emergency but general emergency information in the country is often received from Radio stations (*Good News FM and Ankobra FM*), TV stations and cell phones. Radio stations usually give early warning on impending weather conditions. The cause of fire outbreaks is unknown and no group helps out on such emergencies. Likewise, no person(s) in the community have been trained on emergency situations handling.

ECONOMY AND SOCIETY

The main livelihood options in the community are fishing and farming. Few residents engage in pig farming, poultry and petty trading. Only one livelihood is engaged in by most individual at a time; either into fishing or farming. However, an insignificant number are engaged in both farming and fishing. The main livelihoods are seen as not providing adequate income for the community as fish stock has reduced and farm produce yields very less. The lost of several acres of coconuts in the community to disease has destroyed and made worse the status of the local economy. Current conditions have also witnessed low sales level of petty traders and food crop farmers. External help is seen as the only way to revive the local economy. Supplementary alternative are yet to be identified. Most youth do not have confidence in the local economy and have already started relocating to urban centers of the country.

The aged are considered marginalized to the extent that they do not benefit from the community's resources and also not involved in decision making processes at the community level. However, few of them, regarded '*wise*' are consulted by community leaders on crucial issues for their inputs and suggestions.

AGYEZA

GOVERNANCE AND LEADERSHIP

Agyeza community has got a good leadership structure in place to oversee all activities of the community. There is a chief who is at the helm of all affairs and in his absence, the Tufuhene with the other elders of the chief acts in his stead and leads in the solution of all matters arising in the community to bring peace and tranquility. When there is a call for all community members to gather by the chief's order, all community members make it a point to stop whatever they are doing to attend to the call. This is mostly the case since the traditional authorities almost always discuss issues with the community members. The assembly member, being a resident of the town has made it a point always to inform the community about issues at assembly sittings that concerns the community, only that he does not seek their consent on the issues they are to discuss at assembly before he goes, which the community understands as a normal process.

There are virtually no security threats in the community. However, the community members have become voluntary watchdogs since they sometimes record theft cases of which they do not tolerate and direct such cases to the Police. Such cases are the only cases that have required external help. Because of this, it is very rare to find thieves in operation within the community. Nonetheless, some local laws are not fully obeyed by community members. For instance, no one in the community is supposed to be casting insinuation. But it is not unusual to find offenders of this local law. Other laws and norms however, are not tempered with. For instance, one major norm/ taboo that the community is so stern on is that which is against the practice of 'Juju' (doing evil against another person via spiritual incantations). Anyone caught violating this law is entirely banished from the community

COASTAL RESOURCE MANAGEMENT

The main coastal resources in the community are the sea, sand and coconut trees which have all been affected negatively in one way or the other. The sea is currently not yielding much fish due to the appearance of green-green in the sea; most of the coconut trees have now been washed away by the sea level rise and human activities, hence those who depend fully on the coconut have adapted to the growing of cassava under the coconut trees.; the sand which serves as a barrier between the sea and the community are now gradually 'finishing' due to the rise in sea level and also sand winning. The community is doing nothing to preserve the coastal resources for future use. Moreover, residents do not care which resources are being depleted, so long as there is development project, all natural resources including the coconut trees are cut off to aid the developmental project, adding that should they be reluctant due to environmental conditions, they would be denied the project/development in the community. However, land allocation is considered by community members is always fair and adequate. Migrant fishermen do not pay

for the lands and the indigenes acquire land via the same means regardless of status. There are no initiatives or plans that the community has made to handle issues related to their coastal resources. However, they have a plan (lay-out) about their infrastructural development whereby they have allocated a separate portion of land for future development

RISK AWARENESS AND EMERGENCY RESPONSE

The community faces threats of sea level rise, tidal wave influence, wind-storm, erosion and algal blooming. Some of the causes of the threats were attributed to nature while causes were named for one of the threats (erosion). There are no educational programs which seek to inform them on risk knowledge, though they are aware of a few. Due to the limited knowledge on the associated risks, nothing is being done to reduce impacts of the risks. Though there have been inconsistency in rainfall pattern and excessive sunshine in the community, socio-economic activities have not been altered. No supplementary or alternative sources of livelihood have been identified.

The people of Agyeza get most of their information mainly via the radio. The information is mostly on national issues and not the emergency situations relative to the community. Should one be affected with an emergency situation, it would be on humanitarian grounds that their loved ones in the community may extend a helping hand but not the community at large which provides supports, because there are no formal/ informal groups and no one has been trained in the community to handle any emergencies. They have no plans on emergency situation handling. Community members fill gullies created by erosion with garbage/ refuse.

ECONOMY AND SOCIETY

Most people depend mainly on farming, fishing and coconut oil processing with few of them involved in trading. Their main livelihoods are all in constant depletion in terms of productivity. This is because coconut trees are dying; algal blooms are destroying the coastal sea and soil infertility is resulting to poor yield of cassava. This situation has declined the state of the local economy. As a result, most youth in the community have already left for greener pastures at communities where illegal mining is rampant such as Wassa Akropong and Sefwi.

ELLONYI

GOVERNANCE AND LEADERSHIP

Though the community has got no replacement since their paramount chief and the Tufuhene (the elder who assumes the chieftaincy seat in the absence of the chief) passed away, the community count on the remaining elders of whom none has assumed the chieftaincy seat yet, to help solve whatever problems the community might encounter. Even though chieftaincy is absent, the leadership of the community is in a way, respected, since they are able to mobilize themselves and share ideas at meetings. The traditional leaders call and discuss issues with the community members, but the assembly member has never been in the community since he was elected into office, and the community does not get any information from the assembly. They have only one unit committee representative who confirmed that he gets no information from the assembly representative.

With respect to security issues, the people go around doing their day-to-day activities without fears except that sometimes, it is believed and remain public knowledge that ritualists do invade the neighboring communities to kidnap people for rituals. However, they are almost often alerted anytime the ritualists start with their operations. In addition, some thieves sometimes invade their community to steal their coconut. But they often arrest the thieves and send them to the police station. The community has made a law which forbids individuals from theft related issues. All defaulters of laws and or norms are either reported to the police or banished immediately from the community. According to the people, some community members have been jailed for theft. Because of this, the people comply with all local and national laws that they are not ignorant of. Among the norms of the community are non-farming on Thursdays and non-hunting for snails. It is believed that should one go to the farm on Thursdays, the person would not even have the strength to work but she/he even try the person would be hurt. Most communal labour activities are therefore scheduled on such days. The leaders of the community handle some few of the cases in the community. However, situations that are beyond the power of the elders are dealt with by the police.

COASTAL RESOURCE MANAGEMENT

Among the coastal resources are the river, sea, coconuts and sand. The sea is degraded by the presence of abundant 'green-green' resulting in poor catch and low income as a result. The sand which they use for activities such as building and also which protects the shoreline, according to the people, have been washed away by the sea. Moreover, their river which used to serve as a source of drinking water and as a source of pleasure has been deteriorating, in that, the sea waves over flow into the river, making it salty and not good for drinking; especially in the dry season. Coconut trees are dying and producing no better fruits. Hence, farmers have planted cassava under the coconuts. The cassava plantation is however not doing well due to the poor soil

fertility.

The chief and his elders are the frontier people in the community to be consulted, in case of land acquisition before the land owners are consulted (i.e. when the land is a family land and not the community's). However, in situations where the land needs to be released for a developmental project, the chief and his people sit together to share ideas and collectively decide where the project should be sited. Therefore if there is the need to relocate any member of the community to allow for a project to progress, the chief may do so, since it will benefit the community as a whole. In trying to manage their coastal resources for future use, the community has ceased sand-winning on large scales. However, the community members are allowed to fetch the sand in smaller quantities for their buildings. In addition, they organize communal labour to clear around the river when there is the need to do so.

On uses of the seashore, there used to be coconut trees along the beach about 35 years ago. Within this same period, cars used to ply the beach through to other communities. Tents where fish buyers could rest and wait for canoe to land were also built there. Lastly, the beach was used as landing sites for canoes and as a parking area for fishing nets. The youth at that time used the place as soccer grounds where they used to play all kinds of games especially football. However, most of these activities are no longer in place due to erosion.

RISK AWARENESS AND EMERGENCY RESPONSE

Community members are aware of local threats and noted perceived causes to some of them. They indicated the following, *'it is the heavy rainfall that causes the flooding, and causing the sea level to rise as well; the oil rig in the Ghanaian waters has also contributed to the sea level to rise, electrical faults and human activities (smoking) cause fire outbreaks.'* There are however, no formal/ informal educational programmes to increase their knowledge of risk and how to go about the threats. They mentioned their bold step to report issues on the 'green-green' to the District Assembly for possible solutions, but have since heard nothing about it from the assembly. Equally were discussion held with Hen Mpoano on the *green-green*. Some weather changes, notably inconsistent rainfall pattern, have caused severe problems in this community. Community member noted that about 3 years ago, it used to rain heavily between April & August, but now, it rains continuously following no specific month and ends up destroying property and farmlands with thunderstorms that accompany the heavy downpours. Nonetheless, they are still holding on to their socio-economic activities for lack of alternative livelihood sources. The community has its main livelihood sources being weather dependent.

Residents get general national information from radio and television. With respect to social threats, they always get information about the invasion of the ritualists, from other people outside the community, but not always at the right time. They indicated with grieve that, one old man

went to the bush and never returned; a situation attributed to ritualists. During emergency situations, the community sometimes helps out the affected members of the community, as recorded about 4 years ago; of a man by name Mr. Kwesi Nyamekeh who had his house burnt, and the entire community contributed money to help him. Again, in such situations, the Catholic church does well in providing some assistance to affected community members. Although they help out in such emergency situations, they are not trained in any way to handle emergency situations. In addition, the community has got no plans whatsoever to handle such situations. However, some people close to the beach have prepared to move from their present location before forcibly moved by erosion. They have bought lands within the community where there are no tidal effects and have started building on them.

ECONOMY AND SOCIETY

The community can boast of fishing and mixed farming as their main sources of livelihood and coconut oil processing as a major supporting source of livelihood. However, due to changing natural and environmental conditions, fishing and coconut farming have declined in their productivity; hence coconut oil processing has also been affected. Therefore, attention is now mainly on cassava cultivation. Almost all the economic activities that accompanied bumper fishing harvest in the community are inactive now as there is no good fish catch. This has caused a gradual decline in the community's economy. Due to their inability to change the economy for the better, most of the youth (about 500) have already left the town for Cote D'Ivoire and Juen lagoon (in another far away community- Jaway, in the district) to fish. Most of these youth are yet to return. The aged in the community are believed to be marginalized in that, they lack the strength to go about what would earn them a living. However, they are not left dejected, since churches like the Catholic church do donate to the aged, and also the youth fetch some water for them.

KENGEN

GOVERNANCE AND LEADERSHIP

Leadership exists and there is a very strong organization because the traditional authorities perform their duties to the satisfaction of the people. The assembly representative also communicates with community folks before and after his meetings with the District Assembly. The community members also respect and obey the leaders for a common goal, despite weak initiatives. There are chieftaincy disputes in the community. The main Chief resides in Nawulley. Hence the Tufuhene and the elders are always the ones to consult when there is a problem in the community. Because of this, much respect is accorded the Tufuhene compared to the chief. However, the people always feel safe and comply with local and national laws and norms although few occasionally violate laws/norms. Existing local laws/norms in the community are the prohibition of the following:

- Defecating at the beach
- Dumping of refuse at the beach and in streams
- Rampant felling of trees around the stream

Most offenders are dealt with by local leaders with only few reported to the paramount chief at Beyin and the police

COASTAL RESOURCE MANAGEMENT

All their natural resources (the sea, coconut trees, beach sand and streams) are being degraded. For instance, the coconut trees are dying off while the sea has been covered by lots of algal blooms. The sandy shore has been eroded by the sea and the streams sometimes dry up. As a way to preserve the resources, the community members have stopped sand winning at the beach, and also dumping of solid waste has been banned. Moreover, cutting of trees around the stream has also been seized. Although the community members have stopped the felling of trees around the streams, they are yet to work effectively to plant more trees to sustain the streams. The land regime in the community is permanent- i.e. one acquires land forever. Land allocation process was deemed fair and acceptable by all the community members. Land in the community is owned by families and the stool.

RISK AWARENESS AND EMERGENCY RESPONSE

The community has ideas about environmental threats relative to their community, such as rain storm, sea level rise, beach erosion, drought, flood, malaria outbreak and bush fire but prepared to handle emergencies. However, no steps have been identified or taken to reduce the impacts of these risks. There are also no formal or informal educational programmes nor groups that help out during emergency situations. Likewise, no training has been offered the community or any of its members on management of emergency situations. However, once in a while, most people get

emergency information via television (precisely G.T.V.) radio and personal visit by relatives and other individuals.

ECONOMY AND SOCIETY

The main sources of livelihood in the community are fishing, cassava farming, trading and animal rearing. However, some residents engage in two or more jobs in addition to their main jobs. Most interviewees noted that dated the last two years, economic activities of the community are dying out at an extremely rapid rate. Livelihood sources mostly at risk are cassava production and fishing due to changes in the weather and the green-green in the sea respectively. This has gradually affected all the other sources as well. However, they are only waiting on possible interventions by local/national government to help restore the community as they argue not to have the capacity to change their economy. However, few residents have ventured into snail farming, animal rearing, poultry and fish farming.

'When all is well, we will stay; but if things stand like how it is, we may leave the community to seek greener pastures elsewhere'- a statement by the youths of the community in response to whether they are going to remain in the community in the near future.

The blind and the physically challenged in the community are the most marginalized in the community as revealed by community members. They have never been included in decision making and no thoughts are underway to include them.

NGELEKAZO

GOVERNANCE AND LEADERSHIP

Ngelegako boast of no significant leadership problems. People recognized as key leaders in the community are the Chief, Assembly representative, unit committee members and Church leaders. Community members respect and appreciate the effort of the Chief in consulting them on every issue that has bearing on their lives and well-being. His exemplary leadership such as leading communal labour exercises is equally noted by residents. On his part, the assembly representative also discusses issues firstly with the chief and then the entire community. As many times as possible, he communicates issues discussed at the district assembly meetings to the community.

Most people feel safe as there are no security problems in the community. People comply with local and national government laws as they know the implications of flouting the laws. Similarly, taboos and social norms are well obeyed. Local authorities always ensure that laws are adequately enforced and that whosoever breaks or attempt to break the laws are dealt with. In the extreme case where important norms are violated, the right and most appropriate punishment is applied. The community does not rely much on outside security as laws and norms are fully enforced and well abided.

COASTAL RESOURCE MANAGEMENT

Coastal sea, sand, coconuts, savanna land and three rivers-*Amanzule, silika and Mianda* are the existing coastal resources in the community. Residents strongly claim the quantity of sand at the beach has reduced due to increasing coastal erosion. As a means to keep some coastal resources in good shape, winning of sand along the coast is prohibited and fishermen are not allowed to engage in chemical fishing in the marine waters.

Land ownership rest on the families and family heads takes charge of land matters. However, as tradition demands, the Chief is the custodian of all lands in the community. Access to land is deemed just and fair for both community and individual needs. Infrastructure is usually located at the correct site due to production of land layout by the community. Fortunately, the community has access to potable water, basic school, electricity among others. However, the unavailability of a financial institution (*bank*) is a major disturbance to residents and local leaders. It is believed that a bank will ease the current economic difficulty by providing credit facilities to residents. The community has not taken any initiative to address its coastal issues or even plan for future uses. Historically, the shoreline was used for recreational activities yet due to increasing sea erosion, the once flat beach has turned hilly and reduced in size.

RISK AWARENESS AND EMERGENCY RESPONSE

The community is faced with threats such as flooding, rainstorm, malaria and snake bite. Excessive rainfall had been identified by residents as the main cause for the threats. It is noted that when it rains heavily, flooding occurs at certain portions of the town which brings about mosquitoes as there are much stagnant waters and inevitably results in malaria. Added is believe that snakes are washed into the community at heavy down pour. There is however no educational program to promote risk knowledge; so has the community not taken any initiative to reduce the impact of the risk. Rainfall pattern is seen to be unpredictable and general weather conditions have changes due to deforestation. Notwithstanding the changes in climatic conditions, the community has not changed its socio-economic activities.

Ngelekazo seems unprepared to handle emergency situations. General information is received through cell phones and radio. Flooding is the only emergency and residents admit been unprepared to face the situation. No emergency information is received from anywhere. People predict as to whether it will rain or not and take decisions accordingly. The community has never mobilized resource to address emergency or unexpected situations and no formal/informal groups exist to help out during emergency situations. No community member has received training on emergency situation handling neither does the community discuss plans to handle emergency situations.

ECONOMY AND SOCIETY

Livelihoods and rural economy is getting worse over time. Farming and fishing are the two main occupations in the community and most people are engaged in one livelihood source at a time. Few women are occupied in petty trading. All the livelihoods are at risk. Farmers complain of low yield of crops as the land is no more fertile due to over usage coupled with the occasional destruction of food crops by pigs and cattle. Dwindling fish stock is negatively affected fishing activities. Petty traders record low sales as the main occupations are at risk. Changing the local economy is impossibility by the community. However, few individuals have resorted to the rearing of pigs to reduce the economic hardship on their households. To a larger extent, external market forces determine livelihood conditions. As livelihoods are declining, the youth are slowly but surely leaving the community in search of better economic conditions. Most of them have joined *illegal mining activities (galamsey)* in various places. Though the aged remain marginalized in the community, local leaders consult them for counsel and direction when the need arises but their well-being linger on their relatives and not the community.

4.0 Detailed Notes on Community Participatory Mapping

Key

Symbol	Meaning
S2	Stream
P	Park
W	Well/ borehole
1	Pipe
N	Mangroves
M	Market
PS	Primary school
Ns	Kindergarten
JHS	Junior High School
II	Gulley
-----	Extent of sea wave
RD	Road
K	Cemetery
S1	Coastal sea
++	Canoes
+	Church
+2	Mission house
H	Health facility
MD	Medium density population
C	Coconut trees
S	Sand
A4	Mixed farming
R	River
L	Lagoon
HSF	Hot spot for flood
SW	Swampy area
Cv	Culvert
CSL	Current sea level
C3	Palace
HD	High density population
Re	Refuse site
LD	Low density population
T	Trading activities at beach
X	Highest tidal level
≠	Bridge
○	Peak most sand dune
v	Valley
CFM	Coconut factory machines
TL	Telephone lines
PO	Post Office

1. AVOLENU/NEW TOWN

The shoreline was far from the community in about 50 years ago but has eroded over the years. At high tide, the impact of the sea waves is felt heavily by residents. The Fante people, who are fisher folks and located close to the shoreline, suffer most from the action of the sea waves. Coconuts located near the shoreline in the last 50 years have been destroyed. Flooding which is experienced every rainy season in and around the JHS is attributable to the *Balibangara lagoon* and the *Ndamila stream* which overflows during the rainy season and moves in different directions towards the school. School children therefore find it difficult to attend school during such periods but have no option than to walk through the water. However, though the health facility (clinic) is closer to the JHS, it is not heavily affected because it is on a higher ground as compared to the basic school. There is also a swamp located near the lagoon and stream. The flood also destroys food crops in nearby farms. Refuses has been dumped along the banks of the *Balibangara lagoon* to check the flooding but has proved futile.



FIGURE 9 OUTPUT OF PARTICIPATORY MAPPING IN NEW TOWN

2. EFFASU

Effasu has got a big river by the sea which goes by the name *Effasu Anloenu*. There is a sand bar which prevents it from directly flowing into the sea but community members occasionally open the river to join the sea. There are no settlements close to the river. Mangroves are said to be situated along the banks of the river. Heavy rains flood areas near the refuse dump site which is opposite the town park. The few houses close to the refuse site experience the flood and its impact anytime there is excessive rainfall. There is a swampy area on each side of the community.



FIGURE 10 OUTPUT OF PARTICIPATORY MAPPING IN EFFASU

3. MANGYEA

The sea was about 65m far from the community about 50 years ago. All the coconut trees and buildings along the beach at that time have been washed away as a result of the sea level rise and erosion. The beach has a thin layer of sand and it still stretches to about 35 meters into the community at high tide. The community has three lagoons in the northern part, namely, *Nanbwa*, *kyesi Arde* and *Alubula*. These three lagoons are used for both bathing and fishing. At heavy down pour, areas around the three lagoons get flooded. In the eastern part of the town are mangroves. Coconut plantations are found in the northern part of the town which helps to sustain livelihoods.



FIGURE 11 OUTPUT OF PARTICIPATORY MAPPING IN MANGYEA

4. NZIMITIANU

This community has got two main mangroves (wetlands) sites; one towards Avolenu (New Town) called *Mundumundu* (represents male) whilst the other located towards Half-Assini called Ndabra (represents female). The sea is seen to have eroded the beach in the last couple of years. Prior to its current location, there used to be coconuts, a playing ground along the shore but they have all been destroyed. Also eroded was a road for vehicles at the beach. At high tide, the sea waves extend to the first lane of houses along the shore as well as portions of the cemetery. After heavy rains, areas between the two wetlands get flooded.



FIGURE 12 OUTPUT OF PARTICIPATORY MAPPING IN NZIMITIANU

5. MPEASEM

Some residents claim the shoreline has changed drastically as a result of climate change. The sea has displaced a lot of people who used to live along the coast. They have moved inland as a result of this. Previously, there were coconut trees and buildings along the beach where the shoreline is at present but has been eroded. Pig rearing was active along the shore but came to a halt about five years ago. This was due to an outbreak of a disease that killed most of the pigs and also people took to the habit of stealing the animals.

Most buildings along the coast were built with raffia sticks and are therefore easily destroyed and washed away during floods and high tide. Bamboo is also used in building. Flooding occurs at the northern part of the community at rainy season; particularly areas closer to the stream. Also, areas which are few meters to the east and north of the market and closer to the main road also experience floods at heavy rains. Although most people acknowledge that the shoreline has changed, they remain uncertain as to the causes of the changes.



FIGURE 13 OUTPUT OF PARTICIPATORY MAPPING IN MPEASEM

6. BUAKWA

Buakwa is a community inhabited by Ewes. Available coastal resources include the sea, coconuts, sand, streams and lagoon. To the west of the community is a female lagoon-*Bonza* and Ekpuza- male lagoon to the east. Community members say in the past 25 years, the sea has extended inland and destroyed many houses and coconuts and further reduced the shoreline as there was much sand than now. Currently, it is noted that the sea waves extends to many houses close to the shoreline. The areas around the female lagoon extending to the main road are prone to flood and floods during rainy seasons.



FIGURE 14 OUTPUT OF PARTICIPATORY MAPPING IN BUAKWA

7. NUMBER 4

The community people identified the last building washed off by the rising sea level and the period as between 1993-1996. Also indicated was that the highest tidal waves extend / splash on houses close to the beach and portions of the cemetery. Most settlements are scattered. With the increasing coastal erosion, they believe their current location will be destroyed in few years but look unconcern as they are migrants. The buildings are all made with raffia sticks and bamboo. The oldest man in the community explained that about 40 years ago, cars plied the beach to other communities and there were much sand than they have now. There are two swampy areas with few mangroves.

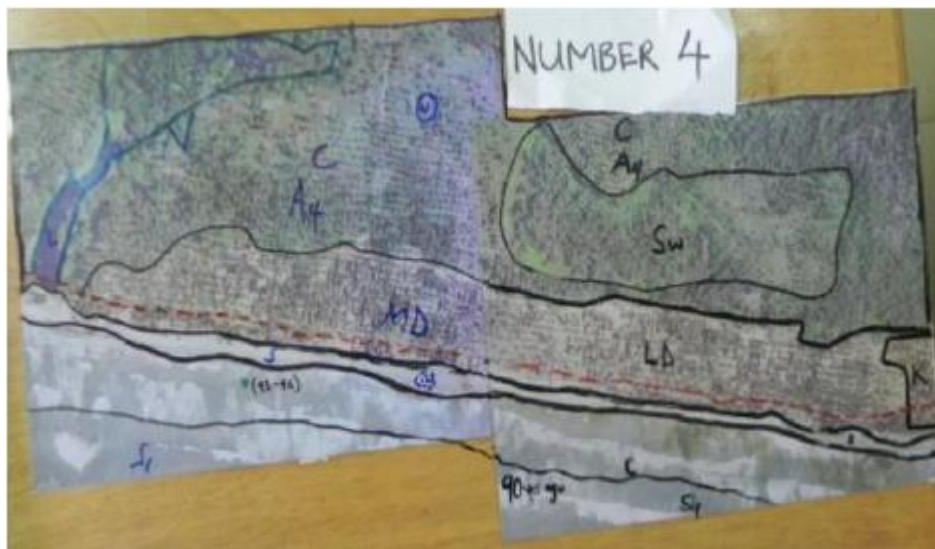


FIGURE 15 OUTPUT OF PARTICIPATORY MAPPING IN NUMBER 4

8. ALOMATUOPE

The sea has uprooted some of the coconut trees close to the beach and this is due to the rise in sea levels. Crops that used to be grown along the coast have now been shifted to inland areas. Raffia sticks is the main building material. There are two swampy areas and a river. Few meters on each side of the river get flooded at rainy seasons and extend to the Catholic Mission House. As such periods, vehicles cannot enter the main community and have to park at the primary school. Likewise, school children find it extremely difficult to reach their school. Some residents rear animals around the swampy areas. The sea level rises predominantly in June, July and August. It is worst in the month of August. They get drinking water from the pipe. Wells along the coast are not tasty but those inland are drinkable. At high tide, the sea water extends to houses and spoils some household properties. Where they berth their canoes have more sand than other areas along the coast.

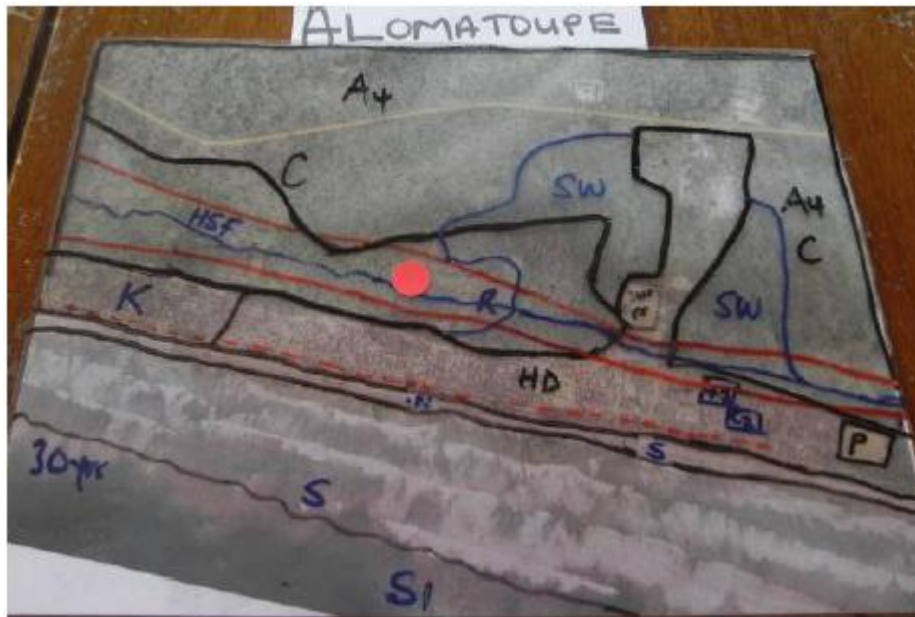


FIGURE 16 OUTPUT OF PARTICIPATORY MAPPING IN ALOMATUOPE

9. JAWAY

The inhabitants of Jaway have since time immemorial stayed in the community. About 30 years ago, there were coconuts on the shoreline but now the sea has destroyed them. The community has a lagoon called *kandiba azule* and few mangroves located to the east. At high tide, the sea water extends a bit inland but does not reach the palace which is quite closer to the beach. The lagoon becomes full during rainy season and extends to few houses and other facilities on its side. The said lagoon also extends to Anlomatuope and passes through the Jaway community. There is a bridge to allow for easy movement of people. When it becomes full, communal labour is organized and holes are dug to make water pass through and enter the sea. Few meters after the bridge is an area marked as "drowning spot" by residents. Residents noted that many children have been drowned at that location. Beyond the lagoon is a swampy area and coconut

on its side. There is another lagoon called *Konlongo* where people fish for food. It is far from the main settlement areas and some people have their farms located beyond the lagoon. Though the cemetery is closer to the shoreline, at high tide, sea water does not extend to the place.



FIGURE 17 OUTPUT OF PARTICIPATORY MAPPING IN JAWAY

10. METIKA

Shoreline changes are not different from that of neighbouring communities. As noted by one opinion leader, *'tidal levels are rising almost on a yearly basis'*. This has resulted in the destruction of a number of houses and property, especially coconut. 50 years ago, the shoreline was so far away from the community and the area was occupied by houses and coconuts. Most people have been forced to move inland even though at present when it is high tide, most homes along the beach get flooded but those affected are yet to move as they claim to be financially unsound to build new houses. The community does not allow the winning of sand along the coast and as a result, they have large deposits of sand along the whole of their coast.

The *Ekpukpole* (stream) also overflows its banks during the rainy season and causes flooding in the town. The sea records its high tides normally or frequently in the months of August, September and October. The community gets its fresh water from the *Ekpukpole* (stream). There

is no sea defense along the shoreline and the community has not adopted any strategy to control the problems of sea waves.



FIGURE 18 OUTPUT OF PARTICIPATORY MAPPING IN METIKA

11. HALF ASSINI

20 years ago, the beach was used as road where vehicles plied. There were coconut plantations which have also been washed away. A fisherman indicated, *'there was huge space of land where we play football and park our canoes and wait under sheds for an approaching canoe'*. Equally indicated was a small valley which has been covered as a result of the sea level rise. Most often the highest tidal waves go as far as entering the lagoon at its base. Human activities such as dumping of refuse and defecation along the banks of the lagoon have caused the deterioration of the quality of that lagoon in that the plantation along the lagoon has reduced. As a result of the human activities around the lagoon, the immediate settlements are always flooded anytime there is a heavy rainfall. Though they have been banned from sand winning, previous sand winning activities have been a cause of the sea level rise and tidal waves effect. But the intrusion of the tidal waves into the lagoon does not bring about any flood issues.



FIGURE 19 OUTPUT OF PARTICIPATORY MAPPING IN HALF-ASSINI, FANTE COMMUNITY

12. EKPU

The people were formerly closer to the sea. They used the shoreline for planting of coconut and as playing ground. For the past 30 years, the sea has been eroding the shoreline at a faster pace due to the high sea level rise and extent of tidal waves. The sea erosion sometimes renders most inhabitants at the coast homeless. They wish to move inland but due to the flooding experienced at certain portions of the northern zone of the community, they claim to have limited relocation options. The people of Ekpu experience flooding during rainy season mostly at low lying areas. There are two closed lagoons namely *ekpunza* and *ekpuanloanu*; one to each side of the community. They are occasionally opened to enter the sea. Parts of the northern sector are designated as hot spot for flooding. Inhabitants at that portion are disturbed by the flooding. The women in particular complain about their inability to enter even their kitchen and prepare food when it rains heavily. Residents believe their life is at risk as a result of the increasing sea erosion and flooding which once killed a boy by carrying him to the sea. However, nothing is being planned or discussed to help control the situation.

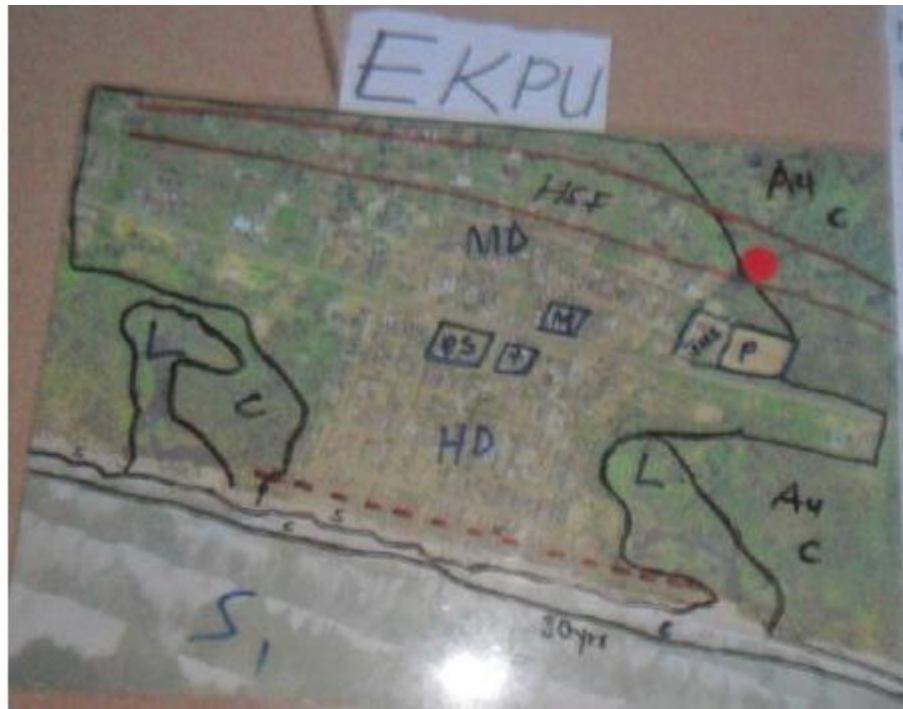


FIGURE 20 OUTPUT OF PARTICIPATORY MAPPING IN EKPU

13. OLD EDOBO

A man in his late 50s noted, *“about 25 years ago, the shoreline was not as it is now, the sea has moved inland approximately 60 meters”*. People did not live there but it used to be a football pitch for children and vehicles also used it. However, people who lived closer to the beach have relocated. This is not because the sea water enters their houses but the breeze is too moist that it wets everything in the houses including mattresses and cushion chairs. High tides occur predominantly in the months of June, July and August. Previously they got fresh drinking water from the *Ezelakpole* lagoon but the sea water has polluted it now and made it salty. High sea tides have caused them to lose a lot of coconut at the shore. According to them, the sea deposits sand on the shore when it is filled with too much sand and this has brought about large sand deposits.



FIGURE 21 OUTPUT OF PARTICIPATORY MAPPING IN OLD EDOBO

14. NEW EDOBO

The community has got few buildings beyond their main market. In the construction of the main street, most of the sand beyond the street was used, leaving a valley there. Hence anytime it rains, this small area retains water and overflows into the street; down the other side of the community. In between the settlements and the sea lie a swamp and the spot with the highest quantity of sand. At high tides, the tidal waves penetrate through the pathway between the sand dunes and into the swamp, but this does not cause the swamp to overflow its banks into the community. About 15 years ago, the beach served as a football park, vehicular road, area for fish trading and coconut plantations. However, 35 years ago, it was only coconuts that were found there, but now none of them exist.



FIGURE 22 OUTPUT OF PARTICIPATORY MAPPING IN NEW EDOBO

15. ATWEBANSO

About 50 years ago, most people had their houses along the coast. However, many of the houses, they claim, have been destroyed by coastal erosion. As noted by one woman, “*most of our houses are in the sea, when it rains heavily or certain times when you sit or walk at the beach, you see beads, bowls etc on the beach especially at low tide—they are all for us, our mothers and fathers.*” Available coastal resources include the sea, sand and the lagoon (Anyiko). Area close to the main road gets flooded when it rains as the culvert is not very supportive. The Anyiko lagoon enters the sea at rainy season. The sea wave enters the lagoon at high tide. Flooding is experienced by residents to the north of the community as it is believed that side of the land is low-lying. The flood occurs almost every year with greater impact noted every 7 years (2002 & 2009). Another contributing factor to the flood is the broken down culvert which was constructed during the main road construction.



FIGURE 23 OUTPUT OF PARTICIPATORY MAPPING IN ATWEBANSO

16. AHOBRE 1

The current sea level (CSL) has extended beyond that depicted on the map. Residents believe it's about 1 street more inland compared to that on the map. The youth noted that about seven years ago, they used to play football along the beach where there were few coconut trees (now washed off). Moreover, they traded fish at that time on the beach, and identified that cars could ply the beach into the community. However, the elderly ones present explained that these are true, only that the part of the beach where cars plied have been covered about 40 years now. No house has ever been affected by the sea level rise only that gullies have been created by heavy rainfall which is currently eroding some houses. However, some few houses now experience the splash of waves at high tide.



FIGURE 24 OUTPUT OF PARTICIPATORY MAPPING IN AHOBRE 1

17. AHOBRE 2

About 25 years ago, the sea was about 100 meters away from the community. The area served as a net mending site for fishermen mend, Football Park, a warehouse owned by United African Company (UAC) and road for vehicles. However, it has all been destroyed by coastal erosion. Also washed away are large quantities of coconut. At present when there is high tide, their football park is flooded and sea water also disturbs residents around the MDCC church. Canoes on the beach are also washed away at such high tides. The available stream is no longer drinkable and remains salty due to sea water intrusion. They also do not have a specific place with too much sand. Sand is in abundance everywhere. During the bumper season, all kinds of fish come to the area, ranging from flamingos to kingfishers.

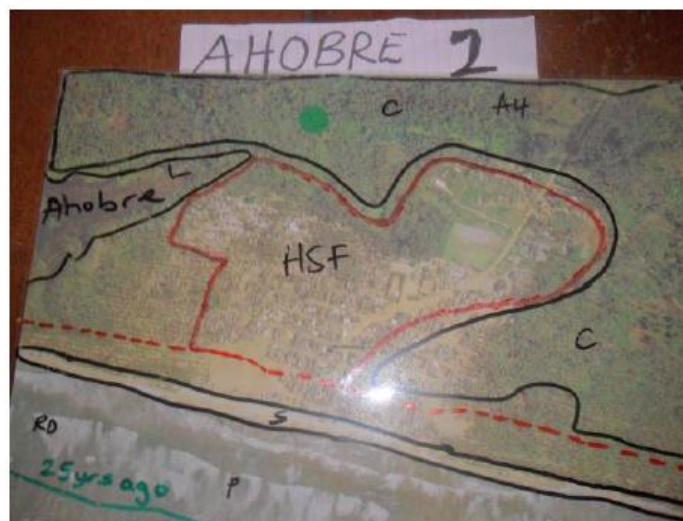


FIGURE 25 OUTPUT OF PARTICIPATORY MAPPING IN AHOBRE 2

18. EGBAZO

Inhabitants have been there for several years. About 30 years ago, the community had borehole/well, Football Park and coconut at the shoreline but now it has been cleared by the sea. Currently, the coastal resources available include mangroves, coconuts, sea and its resources, sand and lagoon. Areas nearer to the school and market center are flood prone. Flooding also occurs at many portions of the community when it rains heavily. At high tide, the tidal waves extend to road leading to *Old Kabenlansuazo* and houses close to the shoreline. Sea erosion is well observed in the town. As a mitigation measure, the people have dug gutters along the coast and other strategic locations to serve as passage for flood waters. The mangroves are seen by the community members as a breeding place for some fish species, habitat for migratory birds and so people are not allowed to cut the mangroves without the permission and approval of the Chief. Approval is usually given for mangroves that are to be used for building purposes. The tidal waves enter houses close to the shoreline and at times, destroy bricks laid along the coast.



FIGURE 26 OUTPUT OF PARTICIPATORY MAPPING IN EGBAZO

19. OLD KABENLASUAZO

The community was about 50 meters far from the sea about 30 years ago. There has been coastal erosion as a result of the rising sea levels. The sand bar is very thin and the sea at high tides overflows the sandbar into the *Domunli* lagoon at the western and eastern parts of the town. The coconut trees and buildings which used to be at the coast have been washed away by the sea. In the northern part of the village is the *Domunli* lagoon which also floods the community up to about 60 meters inundating few buildings along its banks. Along the banks of the *Domunli* lagoon is massive mangrove growth which according to community members, ‘*may in future fill the whole lagoon*’. There is a stream called *Ama Denra* which flows into the *Domunli* lagoon and finally flows into the sea during the rainy season. Residents also disclosed that at rainy

season when some parts of the community get flooded, the sandbar is cleared to facilitate the connection of the lagoon (i.e. the lagoon is opened) to the sea to reduce the impact of the flood. There is a wooden bridge build across the *Domunli* lagoon from the north to the south to allow for easy access to farms and fetching of water from the borehole located behind the lagoon in the northern part of the community. Community members explained that the borehole was strategically located at the side to prevent the intrusion of sea water as it remains their only source of drinking water. The community is involved in mixed farming activities especially coconuts and food crops (mostly cassava) towards the north of the lagoon. However, most cassava harvested is poisonous and considered inappropriate for human consumption. As such, it is used for cassava dough and later for ‘*atuku*,’ a local food. It was revealed that most people have houses in New Kabenlasuazo and others are putting up their houses to make room for quick relocation should the likely heavy flooding hit the community. Again, they foresee coastal erosion destroying the community in few years.



FIGURE 27 OUTPUT OF PARTICIPATORY MAPPING IN OLD KABENLASUAZO

20. BONYERE

Bonyere has got a stream and coconut factory machines by the beach which are always affected by the sea level rise. Moreover, heavy rainfall, the stream overflows and causes areas around the post office to become water logged yet there is not much flooding at that area. The hot spot for flood in the community is around the market which is a low lying area. Hence anytime there is heavy downpour, this area experience flood. Though some of the houses are affected by the tidal waves during high tide, some people still reside there since they have no other alternative. Years back, the community members used to play at the beach and had much sand and coconut trees to their disposal but as observed by an Opinion leader, ‘all these areas are now in the sea’.



FIGURE 28 OUTPUT OF PARTICIPATORY MAPPING IN BONYERE

21. EZINLIBO

For the past 30 years, the inhabitants were so close to the sea. So many buildings were around the coast. Backyard gardens were made around the coast to provide food. There is a river, *Edinla* which joins the *suhome lagoon* and enters the sea at Ezinlibo. There is also a heap of sand at the beach. As a result of the sea rise, buildings around the coast have been washed away by the sea. Gardens and coconuts along the coast have also been destroyed as a result of the unexpected nature of the sea rise. Some have vacated the area to resettle inland. The inhabitants have been using the *suhome lagoon* for their domestic purposes. Currently, the lagoon serves as a tourist attraction and attracts many people in and around the district. The resort, which is owned by some youth in the community, is also used by most community members as their recreational ground during important occasions as a result of the vast land at the shoreline. People of all ages are seen swimming in the river especially in the afternoons.



FIGURE 29 OUTPUT OF PARTICIPATORY MAPPING IN EZINLIBO

22. ALLENGENZULE

The sea was about 60m away from the community 50 years ago. There were coconut trees, food crops and buildings that have been washed away by the sea. ‘Currently, the shoreline is flat and the sandbar is very thin so it would be very easy for the sea to move closer to the town’. There is a stream, *Allengenzule*, (of which the community is named) that flows through the eastern part of the town. It starts from the northern part and flows through a culvert and finally into the sea. There are coconut trees in the northern part and mangroves at the southern part of the stream. The southern part of the stream is a flood prone area and normally gets flooded during the rainy season, affecting people and destroying their homes. The western part of the town has coconut plantations on which the people depend mainly for their livelihood.



FIGURE 30 OUTPUT OF PARTICPATORY MAPPING IN ALLENGENZULE

23. AGYEZA

Agyeza has got spring water which is covered during high tides and exposed only during low tides. About 30 years ago, some portions of the beach (now washed by the sea) was used as a road for vehicles to ply, for coconut trees, as parking lots for canoes and as grounds for trading of fish. There are two main wells in the community which do not taste salty, even though one is very close to the beach and experience the highest tidal influence at times. Excessive rainfall normally leaves two main parts of the community flooded; one around the cemetery and extends to the main road whilst the other is to the north of the community. There is a river closer to the sea but due to the high sand dune, it is difficult for the sea to enter the river when tidal waves increase. However, as mentioned by an elder of the community, ‘the river sometimes experience wave splashes from the sea’.



FIGURE 31 OUTPUT OF PARTICIPATORY MAPPING IN AGYEZA

24. TWENEN

According to community members, the current residence marks their 3rd settlement. Their last place was called Twenwo. Their relocations have been necessitated by the rising of sea level and sea erosion. The sea level rose and destroyed their property in their first settlement also known as Twenwo. Due to that destruction caused by sea erosion, the people then moved to another settlement. They noted that there were a lot of resources like coconuts, sand and mangroves on the coast before the destruction by erosion. .

The extent of sea waves to houses close to the beach in recent times, has triggered believes among residents that they might have to move to another location in the next few years. They predict this to happen in the next 20 years. Evidence that the sea is eroding inland is the high tidal wave that currently enters the buildings close to the shore. Most coconut trees along the beach have been eroded by the tidal waves. As a result of the high tidal waves that threaten households along the beach, most people are now moving to a new settlement area in the northern parts of the town. A stream, *Twene anloanu*, which is the main source of drinking water is well maintained at all times. Current coastal resources identified were coconuts, mangroves and three streams (*Twenen anloanu, Ahui and Sunzunli*). Historically, the shoreline has been used for planting coconut and as playing field and for recreational activities.

26. KENGEN

About 50 years ago the sea was about 60 meters away from the community. There were coconut trees, houses and farms on this land which separated the sea and the land. The community has three streams, namely, *Alemenza*, *Wuluwulu* and *Azira*. Two of them are along the coast and one is on the other side of the community. There are coconut trees around the *Alemenza* stream along the coast; bamboo and coconuts around the *Azira* stream and forest around the *wuluwulu* stream. Residents observed that all the areas are prone to flood. The Tufuhene has constructed a wooden bridge on the *Alemenza* stream to the sea shore for easy access to the shore for fishing. There are two marshy areas namely; *Akpotenra* and *Ekoba*.



FIGURE 34 OUTPUT OF PARTICIPATORY MAPPING IN KENGEN

27. NGELEKAZO

The inhabitants noted that there has been increasing coastal erosion dated 70 years ago and has destroyed activities such as playing of football and other games that prevailed there as well as coconut trees that lined the beach. However, due to the hilly nature of the coast, even at high tide though the sea threatens adjacent houses, it has never entered houses near the beach. This, they believe will forever be the case and that they will not have to relocate. There are three rivers located in the community. They are *Amanzule*, *Silika* and *Miandi*. At rainy season, the *Amanzule* overflows its banks and the entire outskirts of the community gets flooded which extends to farmlands as well as neighbouring communities: *Beyin* and *Elloyin*. A resident indicated that 'when the flood water dries up, white sand is left behind'. There is also a stream, *Arede* located near the community football park/field which equally floods the areas closer to the park during

the rainy season. Another member of the community noted that ‘the flood waters particularly at the farmland takes a couple of months to recede/subside as it destroys all food crops and after heavy rains, reptiles like snakes and millipedes are very common in the town as well as malaria causing insects, mosquitoes’.