Journal of Political Discourse

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EFFECTIVENESS OF EARLY WARNING SYSTEMS ON FARMER-HERDER CONFLICTS/CLASHES IN TARABA STATE, NIGERIA

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Abstract

This paper examines the effectiveness of early warning systems on farmer-herder clashes in Taraba State. The paper employed a mixed approach method in the collection and reporting of data with the aid of triangulation and integration explanation. A population of 67,417 was estimated and out it 398 wereused for interviews and administration of questionnaire. Inferential statistics (Multiple regression analysis) was employed to test the hypotheses at 5% level of significance. The result are presented in tables and discussed according to the research objective and hypothesis. This study revealed a significant effect of early warning mechanisms on early warning systems in Taraba State. It is recommended that communication network providers should shift their attention to remote areas especially vulnerable ones to make dissemination of early warning indicators much easier. Alternatively, flash points remote communities should be frequently patrolled by aircraft security agencies to access communities in times of emergencies hence most remote areas in Taraba State are not easily assessable. Also establishing military barracks and smaller units of security stations in these areas would help in mitigating occurrences of farmer-herder conflicts and ensure prompt action or response thereby utilizing information on early warning as expected.

Keywords: Early warning, Mechanism, Early Warning Systems, Effectiveness, Communication and Farmer-herder, Information.

Introduction

In Nigeria, the farmer-herder conflicts have continued to pose a significant problem that required immediate solutions. Many arguments have been put forward as reasons responsible for the unhealthy relationship between farmers and herders which among others include but not limited to the following; rapid growth of both herds and human population, shortage of grazing lands, lack of access to fresh water, infringement on cattle routes by farmers and to some extent, migration caused by climate change (Muhammed, Ismaila & Biti, 2015). Meanwhile Nigerian government occasionally introduced various agricultural policies and measures such asFadama Projects, Operation Feed the Nation, Green Revolution, Back to Farm to curb the menace in the country. Also dry season cultivations across the country which sometimes coincides with the migration of herds in search for pastures have been identified as a source of problem. In dry season farming for instance, herders frustration resulting from lack of grazing routes and access to watering points covered by all types of farm produce is responsible for farmers and herders clashes (Otaha, 2013).

In order to mitigate farmer-herder conflicts, conflict early warning is considered as one of the measures that could be useful and easy to deploy in crisis prone areas. Early warning systems are the capacities needed to collect, analyse and disseminate timely and meaningful information to enable stakeholders prepare and act appropriately and in sufficient time to reduce the possibility of harm or loss. The purpose is to initiate or draw early responses that happen at the hidden stages of an anticipated conflict, with the aim of preventing, lessening, resolving, or changing circumstances that may increase the likelihood of violent conflict breaking out. Some of the most crucial activities in the course of early warning consist of information gathering, verification, analysis, monitoring and evaluation.

Furthermore, Early Warning (EW) has organizational procedure or mechanism for systemic collection and analysis of information, and the subsequent communication of results of this analysis to policy makers would be in a form that can easily be recognized and understood. In other words, EW is about obtaining first-hand information and using same to inform planned interventions in the mitigation of a conflict; it is a pre-condition for timely response. Therefore, in order to prevent conflict or natural disasters an Early Warning System (EWS) needs to be in place as a first step. It is rather impossible to prevent something from happening without having prior information about its occurrence.

EWS does not by itself automatically prevent conflicts or natural disasters from happening rather it provide vital information to be acted on in time so as to prevent its negative effects. It is clear that EW is an important form of preventive action. Early warning systems are considered an essential component providing timely and effective information to individuals and communities so that immediate, appropriate and effective responses can be taken to reduce potential injury and deaths, and damage to property and livelihoods (Sufri et al., 2019). Elements or measures that constitute EW include collection, analysis, and dissemination of information on various aspects of a conflict, including root causes, triggers, and factors that perpetuate conflict. However, EW is more than the mapping of conflict and violence. EW only makes sense if the information collected, analyzed, and disseminated is linked effectively to early action to prevent breakout or escalation of conflict. Facilities such as phones and other tracking and transmission devices are some of the major instruments of any EWS. There must be a rational and logical starting point for envisaging and anticipating threats and a dependable calculation and warning mechanism that functions well throughout the day. Constant observation of threats factors and preceding events is important to produce precise, well-timed warnings.

The intractability of farmers and herders conflicts in Taraba State has led to the adoption of a number of preventive measures. Like most recurring conflict, the farmer-herder conflict has seemingly necessitated the use or adoption of the Early Warning Response System or mechanism to prevent incessant attacks or clashes (UNDP, 2019). In the last four decades, the international peace agenda has been dominated by debates on conflict prevention. For example, in Africa, the post-cold war era has witnessed a shift in emphasis from conflict management to conflict prevention (Otote, 2016). The overall idea ofthispaper is to examine the effectiveness of early warning mechanisms on early warning systems in preventing farmer/herder conflicts in Taraba State. It is against the forgoing background that we set to test this hypothesis H_0: Early warning mechanisms have no significant effect on early warning system in Taraba State.

ConceptualisingConflict, Early Warning System

Conflict early warning is a system, a set of procedures which involves data collection, analysis, and transmission of the information gathered to the appropriate authorities to take necessary action to prevent an outbreak of violent conflict. Early Warning is intended to detect rising tensions heading towards violent conflict. It is therefore complementary to conflict prevention when it focuses on tensions that are already rising. In another way, Early Warning is the gathering of data and its analysis for the development of strategic options for response. In other words, Conflict Early Warning cannot prevent the generation of conflict but does detect the early stages of conflict and suggests possible responses aimed at averting an eventual outbreak.

Conflict early warning can be defined as the systematic collection and analysis of information coming from areas of crises for the purpose of; (a) anticipating the escalation of violent conflict (b) the development of strategic responses for these crises and (c) the presentation of options to critical actors for the purpose of decision-making (FEWER 1997). While Schmeidl and Lopez (2002) observed further that early warning systems were first used for the purpose of predicting natural disasters and stock market crashes.

Conflict early warning is a prerequisite for conflict prevention. The spirit of conflict prevention is mirrored in the much cited, Agenda for Peace, where the then United Nations Secretary General Boutros-Ghali (1992) defined it as action to prevent dispute from arising between parties, to prevent existing disputes from escalating into conflicts and to limit the spread of the latter when they occur. Gurr and Davies (1998) view conflict early warning as being a component of preventive diplomacy. Maill (1999) distinguishes two general types of active measures to prevent conflict: light prevention and deep prevention. Light prevention generally means improving the international capacity to intervene in conflicts before they become violent through preventive diplomacy. Deep prevention means enhancing and building domestic, regional or international capacity and frameworks to prevent and manage conflict. In both deep and light preventive measures, prudent decision making and effective conflict prevention measures require a capacity to anticipate and analyze possible conflicts and to be warned in time about development that threaten peace and security in a particular region which, is a key element of conflict early warning.

In addition, conflict early warning refers to a conflict prevention system aimed at detecting potential conflict and therefore forestalling an outbreak of one. It is a system because it is a set of procedures which involves data collection, analysis, and transmission of the information gathered to the appropriate authorities to take necessary action in preventing the outbreak of violent conflict (Amamkpa&Mbakwe, 2015). Furthermore, early warning is intended to detect rising tensions headed towards violent conflict. It is therefore complementary to conflict prevention when it focuses on tensions that are already rising. Early warning does include not only the gathering of data but the analysis of that data to develop strategic options for response but does not include the responses themselves which come under conflict prevention. In other words, Conflict Early Warning cannot prevent the generation of conflict but does detect the incipient stages of conflict and suggests possible responses aimed at averting an eventual conflict (Adelman, 1997).

There are two main approaches of practicing conflict prevention. One is the straight preventive approach: whereby a disaster is deemed to be at a risky stage of armed intensification, or circulation. Therefore, there is a call to act in reaction to this risk and to thwart mounting threats. The party involved is usually a third party whose concentrations are

less pressing and not frankly concurrent to the absurdity between the main actors. The second approach pays more attention to the structural prevention, where the focus is to generate such situations that conflict and disagreements barely occur or are not likely to spiral into militarized action. Here, a third party could be concerned in providing support for such situations to grow. These two forms of deterrence are known as light, direct or operational prevention on the one hand and deep or structural on the other hand, according to different researchers (Hugh, Ramsbotham & Woodhouse, 2011). On the other hand, the purpose of early warning is double-edged: to avert conflicts and to impact on deterrence. Nevertheless, it would be ingenious to presuppose that attaining an early response is merely supplying the right records and data at the opportune moment to the appropriate unit or individual. Conflict anticipation demands both competences and that the interceding body has adequate local reliability to afford it with the responsibility to take action (Matveeva, 2006).

Early Warning System

Early warning system mean any initiative that focuses on systematic data collection, analysis and/or formulation of recommendations, including risk assessment and information sharing, regardless of topic, whether they are quantitative, qualitative, or a blend of both. Early warning system prevents loss of life, economic and material resources. These fundamental purposes of early warning systems accounts for its adoption by the United Nations in the area of disaster management, where Human Early Warning Systems (HEWS) had been deployed to forewarn of floods, hurricane, tsunamis, famine and drought, diseases, among other potential humanitarian disasters (Longman, 2016).

Early warning information flow according to United Nations Environmental Programme (UNEP), 2012) is “the provision of timely and effective information, through identified institutions, that allow individuals exposed to hazard to take action to avoid or reduce their risk and prepare for effective response”, and is the integration of four main elements according to the United Nations’ International Strategy for Disaster Reduction (ISDR), it integrates (UN 2006):

Risk Knowledge: Risk assessment provides essential information to set priorities for mitigation and prevention strategies and designing early warning systems.

Monitoring and Predicting: Systems with monitoring and predicting capabilities provide timely estimates of the potential risk faced by communities, economies and the environment.

Disseminating Information: Communication systems are needed for delivering warning messages to the potentially affected locations to alert local and regional governmental agencies. The messages need to be reliable, synthetic and simple to be understood by authorities and the public.

Response: Coordination, good governance and appropriate action plans are key points in effective early warning. Likewise, public awareness and education are critical aspects of disaster mitigation. Failure of any part of the system will imply failure of the whole system. For example, accurate warnings will have no impact if the population is not prepared or if the alerts are received but not disseminated by the agencies receiving the messages. The basic idea behind early warning is that the earlier and more accurately we are able to predict short- and long- term potential risks associated with natural and human- induced hazards, the more likely we will be able to manage and mitigate a disaster’s impact on society, economies, and environment.

Early warning is all about preventing conflicts of any kind from becoming a full blown conflict. In the light of this, Bauwens and Reychler (1994) further state that conflict prevention has become a key concept in the discussion of international system's security and peace concerns. The installation of conflict early warning systems stands high on the agenda of conflict prevention. Schmeidl and Lopez (2002) assert that conflict early warning systems are playing an even more crucial role in the international arena, in identifying areas at risk of violent conflicts. They add that the development of multi- methodological approaches has brought early warning analysis closer to anticipating rather than predicting crisis that could lead to large-scale humanitarian disaster. Rupesinghe and Michiko (1992) observed that firmly established early warning is a solid management tool for preparedness, prevention and mitigation. Advanced knowledge through systematic monitoring of root causes of developing situations would better prepare the concerned parties or agencies to take appropriate and timely action aimed at mitigation, negotiations or prevention.

Early warning is defined as "a process that: (a) alerts decision makers to the potential outbreak, escalation and resurgence of violent conflict; and (b) promotes an understanding among decision makers of the nature and impacts of violent conflict." It involves the regular collection and analysis of data on conflicts, by systematically monitoring and reporting conflict indicators. Early warning systems generate a set of products, based on quantitative and qualitative analytical methods. This helps formulate scenarios and response options that are communicated to decision-makers. Early warning systems are linked to response instruments (Defontaine, 2019).

Early response refers to "any initiative that occurs as soon as the threat of potential violent conflict is identified and that aims to manage, resolve, or prevent that violent conflict," by using preventive instruments and mechanisms. Different types of response exist, ranging from fact-finding, mediation, peace-making dialogue, negotiations, preventive diplomacy or more robust mechanisms such as sanctions.

Defontaine (2019) further opined that early warning can be an effective tool if strongly linked to responders. However, the link between early warning and early response has not always been effective. Strengthening this link to provide better responses to violent conflicts requires:

- Promoting stronger interactions between warners and responders, and exchanges to discuss strategies for response
- Timely and quick responses to warning
- Monitoring the impact of responses to conflicts to inform decision-making and strategies
- A better understanding of the value-added of EWS among institutions, the proximity and quality of the interface between early warning and response mechanisms
- Designing evidence-based response instruments to adequately respond to warning
- The design of nuanced response actions to take into account changes in the conduct of warfare.

Theoretical Review

There are many theoretical works that are useful for this study and some of which are; communication theory, the social learning theory, community-based disaster risk management theory, vulnerability theory, information diffusion theory etc. For the purpose of

clarity and proper analysis however, diffusion and communication theories are used as anchor theories for this paper. The choice of these theories is not unconnected to the fact that this paper seeks to examine the effectiveness of early warning mechanisms on early warning systems for conflict prevention in Taraba State which is hinged on communication and innovations.

The persistent conflicts between farmers and herders in Nigeria's Taraba State have long been a source of concern, disrupting livelihoods and impeding socioeconomic development. Diffusion and communication theories can provide valuable insights into the potential role of early warning systems in mitigating these clashes (Mojisola, 2019).

Diffusion theory, as proposed by Everett Rogers, suggests that the adoption of innovations, such as early warning systems, is influenced by various factors, including the perceived attributes of the innovation, the communication channels used, and the social system in which it is being introduced. Effective communication strategies that leverage traditional and digital channels can facilitate the widespread adoption of early warning systems among farmers and herders, enabling timely responses to brewing conflicts (Rogers, 2015).

Similarly, communication theories, such as the Diffusion of Innovations and the Elaboration Likelihood Model, highlight the importance of tailoring communication messages to the target audience and using appropriate channels to enhance the persuasiveness and relevance of the information. By understanding the communication preferences and information needs of both farmers and herders, early warning systems can be designed to effectively disseminate alerts and facilitate collaborative conflict resolution (Johnson et al., 2001).

Previous studies have explored the role of communication in addressing agricultural development and conflict resolution challenges in Nigeria. These studies underscore the significance of effective communication in fostering sustainable rural and agricultural development, as well as the potential for communication to mitigate conflicts (Mgbenka et al., 2013). In the context of farmer-herder clashes in Taraba State, the implementation of early warning systems should be coupled with a comprehensive communication strategy that takes into account the principles of innovation diffusion and the unique nuances of the local communication landscape (Lucas et al., 2023).

The success of early warning systems in mitigating farmer-herder conflicts in Taraba State hinges on the incorporation of diffusion and communication theories into the system's design and execution. By drawing on these theoretical frameworks, early warning systems can be customized to meet the unique needs and communication preferences of the stakeholders, thereby increasing their adoption and fostering peaceful coexistence between farmers and herders in the region (Emmanuel et al., 2018).

Material and Method

The paper employed a mixed approach (quantitative and qualitative methods). The mixed approach integrated quantitative and qualitative methods, ensuring collection and reporting of corresponding data. Data triangulation and integration included, Key Informant Interviews (KII).

Study Design

This paper is hinged on case study design that would help in the understanding of three major aspects that underpin the theory of conflict prevention; timely response to manifestations of

conflicts; an all-inclusive response, coordinated approach to mitigate the threats to conflicts; and efforts to transform the root causes of conflicts through a detailed study of the farmers-herders conflicts in Taraba State. Probability and non-probability sampling techniques was used in the administration of questionnaire and interviews. This is to give all members of the research population equal opportunity of being selected in the sample.

Population of the Study

The six selected LGAs, their population and senatorial zones and their respective population per LGA are stated in Table 1. The choices of these LGAs are not unconnected to the fact that some of the most affected areas in the state in terms of farmers and herders conflicts.

Table 1: The Sample Population of the Communities studied

Senatorial Zones	Local Gov't. Areas	Communities	Population (2006)	Population Projection (2018)
Taraba North	Karim Lamido	Bomada	284	674
		Bandawa	1869	4434
	Lau	Bujum	983	2332
		Abare	4076	9671
Taraba Central	Bali	Borno Kurukuru	373	885
		Kungana	1587	3765
	Gassol	Sabon Gida	1186	6705
		Dan-Anacha	5493	13033
Taraba South	Ibi	Sarkin Kudu	4346	10311
		Gindin Waya	493	1170
	Wukari	Chiankai	3438	8157
		Tunari	2647	6280
Total			**26,775**	**67,417**

Source: National Population Commission.

The questionnaire was distributed according to the population size of the communities studied.Purposive sampling technique was used in the administrationquestionnaire. (it targeted the critical stakeholders in the communities like the officials of local government councils, security agencies, traditional rulers and hunters) and random selection (the population was randomly chosen for the administration of questionnaire in order to represent the general views of the people household by household) sampling was also used. The random criteria centered on farmers and herders that have lost their loved ones, property, crops, animals, etc during the many conflict situations in the selected communities. Furthermore, simple random sampling method was used to capture the opinions of members

of the selected communities not directly affected by the crisis but exists in the conflicting environment. Four hundred and twenty-two (400) questionnaires were administered and three hundred and ninety-eight (398) were retrieved, representing 94% and analysed. Purposive sampling was used to select the Key Informant Interviewees (KII). In addition to the 398 respondents that responded to the questionnaire, thirty-three (33) respondents were used as key informants for in-depth interview. They were selected as thus:

2 from each of the selected 12 communities (1 Traditional Ruler and 1 Hunter) = 24

1 from each of the selected 6 LGAs (LGA Official) = 6

1 each from Security Agencies:- The Nigeria Police Force (NPF) and Nigeria Civil Defence Corps (NCDC) = 2.

(The Nigerian Military was not considered because resolving farmer-herder conflicts is not their primary responsibility).

1 from the state coordinating office for conflict/emergency management in Taraba State [State Emergency Management Agency (SEMA)] = 1

Total = 33 respondents.

Sources of Data Collection

This research relied on both primary and secondary data. Secondary data is important in identifying gaps in other conflict analyses situations and this has greatly enriched the study. Primary data collection involved administration of questionnaire. Thesewere used purposefully to uncover the impact of early warning systems on the prevention efforts of farmers-herders conflicts in Taraba State as well as how intervention/response efforts geared towards mitigating the situation was conducted to improve and promote communities identify areas of intervention. Questionnaire were self-administered on respondents from each of the communities with the help of research assistants.

Secondary data included data collected from newspapers, reports of panels and committees and official documents of government on farmers-herders conflicts in Taraba State. These data were outsourced from security agencies in Taraba State, commissions or panel or commission of inquiries, government reports, National Institute for Peace and Conflict Resolution, Abuja, etc. Histories and profiles of communities were used as they offer systematic accounts of conflict early warning and conflict prevention mechanisms that helped in analyzing the data collected.

Sampling Size and Sampling Technique

The formula of Yamane (1964) was employed to select the appropriate sample size for the study. The Yamane's formula is given as:

$$n = \frac{N}{1 + N(e^2)}$$

Where

n= is the sample size

N= is the population

1= is a constant

e^2 = Is the estimated standard error which is 5% for 95% confidence level.

$$n = \frac{67{,}417}{1 + 67{,}417(0.05^2)}$$

$$n = \frac{67{,}417}{169.5425}$$

$$n = 398$$

A sample size of 398 respondents, representing 5.9% of the total population was selected from twelve selected communities drawn from six LGAs. Questionnaires were distributed proportionately according to the population size of the communities. Table 3 below shows how the questionnaire was distributed to the twelve communities across the six LGAs.

Table 2: Sample Frame and Allocation of Questionnaire per Community

Senatorial Zones	Local Gov't. Areas	Communities	Population Projection (2018)	No. of Questionnaire
Taraba North	Karim Lamido	Bomanda	674	17
		Bandawa	4434	36
	Lau	Bujum	2332	24
		Abare	9671	44
Taraba Central	Bali	Borno Kurukuru	885	19
		Kungana	3765	30
	Gassol	Sabon Gida	6705	33
		Dan-Anacha	13033	52
Taraba South	Ibi	Sarkin Kudu	10311	47
		Gindin Wuya	1170	20
	Wukari	Chiankai	8157	43
		Tunari	6280	33
Total			**67,417**	**398**

Source: Reconnaissance Survey, 2021

Sampling Techniques

Questionnaire were purposively and randomly distributed. The purposive method was used to select and distribute questionnaire. These include the people that lost their loved ones, property, crops, animals, etc during the many conflict situations in the selected communities. In addition to the above, simple random sampling method was used to capture the opinions of members of the selected communities not directly affected by the crisis but exists in the conflicting environment.

Method of Data Analysis

The study made use of descriptive (frequency and percentage) and inferential (multiple linear regression) statistics in the analysis. Frequency and percentage was used to analyse the research objective and multiple linear regression was used to test the hypotheses at 0.05 level of significance.

Model Specification

The study employed multiple regression to test the hypothesis. This model is adopted and re-modified from Bilyaminu, Iya and Purokayo (2017). The multiple regression models are given as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \ldots\ldots\ldots\ldots\ldots \beta_n X_n + e$$

Where:

Y= Early warning response mechanisms (EWRM)

Early warning response mechanisms = f(EERM, TI, RI, CBOs, SA, GIP, CM, CEWM, MTR and EWTM)

x_1= Existing Early Response Mechanisms (EERM)

x_2= Traditional Institutions (TI)

x_3= Religious Institutions (RI)

x_4= Community Based Organizations (CBOs)

x_5= Security Agencies (SA)

x_6= Government Institutions and Policies (GIP)

x_7= Community Members (CM)

x_8 = Conflict Early Warning Monitoring (CEWM)

x_9= Methods of Transmission and Recommendations (MTR)

x_{10}= Early Warning Transmission Mechanism (EWTM)

Linear Model is given as:

$$FHC = \beta_0 + \beta_1 \text{EERM} + \beta_2 \text{TI} + \beta_3 \text{RI} + \beta_4 \text{CBOs} + \beta_5 \text{SA} + \beta_6 \text{GIP} + \beta_7 \text{CM} + \beta_8 \text{CEWM} + \beta_9 \text{MTR} + \beta_{10} \text{EWTM} + e$$

Result and Discussion

What are the early warning mechanisms in Taraba State?

Table 3: Early Warning Mechanisms

S/N	Early Warning Mechanism	SA	A	UD	DA	SDA
1.	There are early warning response mechanisms	**217(54.5 %)**	154(38.7%)	7(1.8%)	15(3.8%)	5(1.3%)
2.	Traditional institutions	47(11.8%)	294(73.9%)	9(2.3%)	33(8.3%)	15(3.8%)
3.	Religious institutions/Faith based organizations	97(24.4%)	256(64.3%)	17(4.3%)	18(4.5%)	10(2.5%)
4.	Community Based Orga nizations	208(52.3 %)	156(39.2%)	8(2.0%)	21(5.3%)	5(1.3%)
5.	Security agencies	8(2.0%)	23(5.8%)	5(1.3%)	275(69.1%)	87(21.9%)
6.	Government institutions	9(2.3%)	7(1.8%)	12(3.0%)	289(72.6%)	81(20.4%)
7.	Community members	248(62.3 %)	111(27.9%)	7(1.8%)	22(5.5%)	10(2.5%)
8.	Conflict monitoring systems	31(7.8%)	74(18.6%)	23(5.8%)	190(47.7%)	80(20.1%)
9.	Methods of Transmission of recommendations	47(11.8%)	42(10.6%)	71(17.8%)	108(27.1%)	130(32.7%)
10.	Early Response is Good	16(4.0%)	34(8.5%)	12(3.0%)	279(70.1%)	57(14.3%)

Source: Field Survey, 2021

Table 3 shows the early warning mechanisms in Taraba State. Early warning response mechanisms are very important as the determination of the effectiveness of early warning systems generally. The results revealed that, 54.5% of the respondents strongly agreed with the statement. This implies that there are early warning response mechanisms to farmer-herder conflict in the study area. Most of the respondents interviewed acknowledged the fact that there are early warning response mechanisms in their communities and it helps to some extent in mitigating farmers and herders conflicts.

Traditional institutions play a vital role in the administration of their communities and seen as the oldest administrative system. As a result, much allegiance is paid to it by the subjects in communities. They enhance effective early warning response as one of the early warning response mechanisms in Africa. The results revealed that, (11.8%) and (73.9%) strongly agreed and agreed with the statement, while 2.3% were undecided. Furthermore, 8.3% and 3.8% strongly disagreed and disagreed with the statement respectively. This means that traditional institutions are effective in early warning response mechanism in the study area. According to the respondents interviewed, traditional institutions are the custodians of vital information on security in their communities. One of the Royal Highnesses states that in his domain, the traditional council handles even reports that have to do with impending farmers and herders conflicts in his community. He recalls that:

> *... all the traditional structures in this kingdom relate information on any impending attacks based on their hierarchy. Once there is an information on threats to peace especially farmers and herders, the council of chiefs is constituted to deliberate on the information and all*

> *the relevant authorities notified accordingly. This has in no small way helped us here (Mayo Lope, April 2020)*

Religious or faith based organizations enhances the effectiveness of early warning response mechanisms because they play major role in collecting information from their congregants who most times give out information to the religious leaders voluntarily through the various organs of religious bodies in case of any impending attacks on their communities. The results show that, 64.3% of the respondents agreed with the research statement. This means that religious institutions/faith based bodies are effective instruments of early warning response mechanisms in the study area. Majority of people in communities in Taraba State belong to one religion or the other especially Islam and Christianity. This has always assisted in information gathering because most people are closer to their religious leaders than traditional rulers for reasons best known to them. As a result, they inform their pastors or imams about any rumours of an impending attack on their communities with the aim that prayers can avert it. These religious bodies in turn report to either the traditional rulers in their constituency or to relevant constituted authorities for prompt action. According to one government official in Karim Lamido Local Government Council ….there can be no meaningful meeting aimed at preventing farmers and herders conflicts in Taraba State without CAN and JNI in attendance (Bomanda, 2020).

Thus, according to them, either the farmer or the herder belong to either one of the two bodies, therefore it is easier for information to get to them and have conflict either mitigated or resolved amicably thereby achieving lasting peace in communities. Community Based Organizations (CBOs) are important components in early warning response mechanisms because they are conversant with their environment and could easily identify any threat to the security of their communities. The results indicate that, 52.3% strongly agreed with the research statement. This implies that community based organizations are key in early warning response mechanism in Taraba State. These organizations which comprise of youth vanguards, vigilante groups, and hunters association of Nigeria have much to offer in the prevention of farmers and herders conflicts in Taraba State. According to most of the respondents interviewed, community based organizations help to identify most of the flash points and also the nature of such threats because they are in those communities. A security personnel interviewed states that;

> *…those CBOs serve as the connecting points between them and the communities especially when it comes to security issues". He further states that "…once there are issues or signs that there are impending attacks in their various communities, they signal us immediately" (Jalingo, October, 2020).*

A government official further affirmed that CBOs play vital role in early warning response mechanisms because they serve as the antennas for government, security agencies and stakeholders in early warning systems.

Security agencies are important in early warning response mechanism because of the role they play in insuring that conflicts are mitigated. They are the response organs in the entire system of early warning. Results show that, 69.1% of respondents strongly disagreed with the statement. This means that security agencies do not play effective role in early warning response mechanism in the study area. Even though security agencies are very important organs of early warning response mechanisms, their performances are not appreciable in Taraba State. Most of the respondents interviewed acknowledged that security agencies can

be ranked top in farmers and herders conflicts prevention in Taraba State but fail most often to live up to expectations. Respondent 1 states that whenever there is likelihood of attack on their community, the security often delay in responding to them.

Government and its agencies are very relevant in early warning response mechanisms because they are the policy or decision-making organs in the response chain which determines the effectiveness or success of the entire early warning systems. The result revealed that, 72.6% of respondents strongly disagreed with the statement. This means that government institutions and policies are not effective in early warning response mechanism in Taraba State. Government decisions are some of the greatest determinants of the effectiveness of conflict early warning system but the case in Taraba State is different because the failure of early warning in preventing farmers and herders conflicts in the state is associated with the lack of political will to confront the situation head on. Most of the respondents interviewed expressed reservations on the performance of governments and its agencies towards mitigating farmers and herders' conflicts in the state. A leader of MACBAN posits thus;

> *... the government of Taraba State is not serious in making sure that these conflicts end. The whole thing has become political somehow because sometimes the government only acts based on whish sides of the two voted for it during the previous election. If the governor is not happy with a particular community because of political differences between him and political representatives of such communities in question, he will not act (Jalingo, April 2020).*

Community members play important role in ensuring effective early warning response mechanisms which lead to successful early warning systems. This results state that, 62.3% strongly agreed with the research statement. This implies that community members do not play effective role in early warning response mechanism in Taraba State. According to most respondents interviewed, many people in our communities are careless when it comes to handling information related to impending attacks on communities. Most of the respondents, especially a vigilante leader in one of the communities in Dan-Anacha states that;

> *... these people you see in this community do not have time to things that has to do with security. Some upon getting information of an impending attack decides to stay quiet for fear of being arrested by the police (Dan-Anacha, June, 2020).*

Test of Hypothesis

Hypothesis Three (H_0): Early warning mechanisms have no significant effect on early warning systems in Taraba State.

Table 4:Summary of Simple Linear Regression Analysis on the Effect of Early Warning Mechanisms

Variable	Coefficient	Standard Error	T	P-value	Remarks
Constant	0.132	0.057	2.330	0.021	S
Existing Early Response Mechanisms (EERM)	-1.782	0.473	-3.770	0.000	S
Traditional Institutions (TI)	-0.284	0.053	-5.385	0.000	S
Religious Institutions (RI)	-0.725	0.151	-4.801	0.000	S
Community Based Organizations (CBOs)	0.416	0.660	0.630	0.529	NS
Security Agencies (SA)	-0.911	0.146	-6.239	0.000	S
Government Institutions and Policies (GIP)	-0.236	0.025	-9.440	0.000	S
Community Members (CM)	-1.572	0.457	-3.439	0.001	S
Conflict Early Warning Monitoring (CEWM)	-0.253	0.067	-3.792	0.000	S
Methods of Transmission and Recommendations (MTR)	-0.372	0.112	-3.321	0.000	S
Early Warning Transmission Mechanism (EWTM)	-1.151	0.132	-8.719	0.000	S
F-value = 38.411 R^2 = 0.691				0.000	S

Independent Variables: Existing Early Warning Mechanisms (EERM), Traditional Institutions (TI), Religious Institutions (RI), Community Based Organizations (CBOs), Security Agencies (SA), Government Institutions and Policies (GIP), Community Members (CM), Conflict Early Warning Monitoring (CEWM), Methods of Transmission and Recommendations (MTR) and Early Warning Transmission Mechanism (EWTM)

Dependent Variable: Farmer-Herder conflicts

S= Significant

Table 4 shows a significant effect of early warning mechanisms on early warning systems in Taraba State. This is because the P-value (0.000) of the ANOVA is less than the alpha value (α= 0.05). Hence the null hypothesis which states that information management has no significant effect on early warning systems in Taraba State is hereby rejected at 0.05 level of significance. The R^2 = 69% indicates that the model is suitable for explaining the effect of early warning mechanisms on early warning systems in Taraba State.

Existing Early Response Mechanisms (EERM): The result shows that Existing Early Response Mechanisms (EERM) has negative coefficient that was significant at 5% level. This implies that the Existing Early Response Mechanisms (EERM) is not effective in early warning systems in Taraba State.

Traditional Institutions (TI): This was found to be negative and significant at 5% level. This negative coefficient value is as a result of poor conflict management by Traditional

Institutions (TI) in the study area. This position contradicts the general believe that traditional institutions are closer to the people. This is probably influenced by the fact that traditional rulers are always predisposed to their subject and trusted as the custodians of the traditional norms and values of the communities. In a typical traditional African setting, traditional institutions are highly regarded and respected and as a result pay allegiance to its.

Religious Institutions (RI): This has negative coefficient and significant at 5%. This negative coefficient may be as a result of ineffective conflict management by Religious Institutions (RI) in the study area. It could be that these categories of people in communities have no or little link with the security agencies. In local government administration, religious leaders are not given important role to play especially with security issues.

Security Agencies (SA): They were significant at 5% level and negatively related to farmer-herder conflict. The negative coefficient implies that Security Agencies (SA) approach to information management on farmer-herder conflict is ineffective. This position could be based on the premise that the security agencies are not always quick in responding to early information sent to them from communities in order to avert any conflict between the farmers and herders. Sometimes lack of prompt response maybe due to topography of the communities and lack of proper logistics on the side of the security operatives.

Government Institutions and Policies (GIP): These are negative and also significant at 5% level. This negative coefficient means that Government Institutions and Policies (GIP) are ineffective to manage farmer-herder conflict in Taraba State. The reason why government agencies are not effective in managing farmer-herder conflict may be due to administrative bottlenecks and lack of commitment by those directly or indirectly responsible.

Community Members (CM): The coefficient of value of Community Members (CM) was negative and also significant at 5% level. This implies that Community Members (CM) response to conflict escalate farmer-herder conflict in Taraba State. This may be caused by lack of skills or knowledge on how to manage information on early warning. This is because in early warning, it is not just the information that is important, but the quality and clarity of the information is fundamental to the success of early warning through quick and prompt response by agencies responsible.

Conflict Early Warning Monitoring (CEWM): The coefficient was negative and also significant at 5% level. The negative coefficient means that Conflict Early Warning Monitoring (CEWM) is ineffective in the study area. Conflict early warning monitoring is one of the important components of early response mechanism and its failure to meet up with its expectations maybe suggestive as to why conflicts between farmers and herders are continuing unabated in Taraba State.

Methods of Transmission and Recommendations (MTR): They were significant at 5% level and negatively related to farmer-herder conflict. The negative coefficient implies poor methods of transmitting and recommending early warning system in the study area. Maybe due to lack of skills in reporting early warning signals, methods of transmission and recommendation could be poor thereby leading to frequent occurrences of farmers and herders conflicts in the study area.

Early Warning Transmission Mechanism (EWTM): Government Institutions and Policies (GIP) were negative and also significant at 5% level. This negative coefficient means that Early Warning Transmission Mechanisms (EWTM) are ineffective to manage farmer-herder conflict in Taraba State. Early warning transmission mechanism is key to the success of early

warning system. Its failure to perform effectively could lead to the ineffectiveness of the entire early warning system. This negative coefficient is suggestive of the constant occurrences of farmer-herder conflicts in Taraba State.This finding also supports the finding of Musila (2013) who observed that this could be due to communal clashes/disagreements. Members of the community at war with the other may not inform their perceived enemy of the impending danger they have seen/noticed (Cancelling information). Again, International Peace Institute (IPI) (2012) states emphatically that political will and adequate resources are prerequisites for a timely and appropriate response to conflict.

Conclusion

In conclusion, this study has demonstrated the pivotal role of early warning mechanisms in enhancing the effectiveness of early warning systems in Taraba State. The findings revealed that robust early warning mechanisms can significantly improve conflict preparedness, response and mitigation efforts. By leveraging on local knowledge, community engagement and technology innovations, early warning mechanisms bridge the gap between warning dissemination and response. The study's results underscore the importance of investing in context-specific early warning mechanisms that cater to the unique needs and vulnerabilities of Taraba State. Policy makers, practitioners and stakeholders must prioritize the development and integration of effective early warning mechanisms into existing early warning systems. Ultimately, this study contributes to the growing body of knowledge on early warning mechanisms in saving lives, reducing risks and promoting resilient communities in Taraba State and beyond.

Recommendations

The study recommended that communication network providers should shift their attention to remote and vulnerable areas to make dissemination of early warning indicators much easier. Alternatively, flash points remote communities should be frequently patrolled by air using helicopters as strategies by security agencies to access communities in times of emergencies and should be encouraged by government through proper budgetary allocations that would ensure procurement of necessary equipment that can facilitate smooth operations. Most remote areas in Taraba State are not easily accessible, therefore establishing military bases and smaller units of security stations in these areas would help in mitigating occurrences of farmer-herder conflicts in the areas because it will ensure prompt action or response thereby utilizing information on early warning as expected. More so, there is need to encourage community-led early warning mechanisms, leveraging on local knowledge and social networks. Enhance inter-agency collaboration by fostering cooperation among government agencies, NGOs and stakeholders should be encouraged for effective warning dissemination. Relying on technology by implementing mobile-based, SMS and social media platforms for timely warning dissemination is necessary. Most importantly, capacity building and training by providing regular training for stakeholders, community leader and emergency responders should be encouraged. Lastly, establishing feedback mechanisms by implementing feedback loops to assess warning effectiveness and community response is expedient in the effectiveness of early warning mechanisms.

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