Inter-Governmental Cooperation/Collaboration and the Management of Flood Disasters in Nigeria

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Abstract

Despite the adequacy of institutions and laws, there are poor inter-governmental collaborations leading to unprecedented increase in flood disasters in the study areas – Kogi and Anambra States in Nigeria. Hence this study, which evaluates inter-governmental cooperation in the effective management of flood disasters in Kogi and Anambra States of Nigeria, with a focus on National Emergency Management Agency (NEMA). The research design for this study is empirical survey. The theoretical framework is anchored on System Theory and Structural-Functional theory. Data were gathered through quantitative and qualitative methods. A population of 4,300 NEMA staff was used, along with a sample size of 430 selected through simple random sampling method. The states and agency (NEMA) were purposively selected. Questionnaires and in-depth interviews were used to collect data. Data were analysed using chi-square and Crammer's V. One hypothesis was tested. Findings from this study revealed that there is no significant relationship between inter-governmental cooperation and effective management of flood hazards in Kogi and Anambra States of Nigeria; NEMA has achieved much of her objectives and institutional and legal frameworks are sufficient for the effective management of flood hazards in the study area. The study therefore recommends strengthening of inter-governmental collaborations in the effective management of flood hazards in the study area, and stiff enforcement of environmental laws by NEMA, as this might mitigate flood disasters in the study area.

***Keywords*: cooperation, disasters, flood, hazards, inter-governmental**

Introduction

Disasters are unexpected events which can be natural or man-made. They result in monumental loss of lives and properties in Nigeria and globally. Natural hazards include flooding, earthquakes, vulcanicity and climate change among others. Similarly, human-induced disasters include wild fires, global warming and soil erosion, among others. Governments respond to these disasters through the formulation and implementation of public

policies, which are decisional outputs of government to solve social problems. On the issue of flood hazards, Federal Government of Nigeria inaugurated the institution of National Emergency Management Agency (NEMA) and the legal framework – NEMA Act No.12 of 1999. There is massive increase in flood disasters in Nigeria, particularly 2012, 2018 and 2022. Disaster management is consequently poor in the study area (Lokoja and Konton-Karfe in Kogi State; Onitsha and Obosi in Anambra State).

Disaster management refers to a process of effectively preparing for and responding to disaster in order to lessen the harm the disaster could cause. The aims of disaster management are to reduce and avoid potential human and material losses from hazards, assure prompt and appropriate assistance to victims of disasters, and achieve rapid and effective recovery. It also refers to the planning of resources to do disaster preparation, prevention, quick response, and recovery. Disaster management connotes the timely rehabilitation of flood victims to minimize harm to the lives and means of livelihood.

The government ministries, agencies and parastatals involved in the environmental policy formulation and execution in Nigeria include National Emergency and Management Agency (NEMA); National Environmental Standards and Regulations Enforcement Agency (NESREA); Ministry of Humanitarian Affairs, Disaster Management and Social Development; Emergency, Crisis and Disaster Risk Management Institute; and Federal Ministry of Environment, among others. NEMA, a federal agency, forms the focus of this study for being the major coordinator of all disaster management efforts in Nigeria.

There is also the problem of poor preparation and inability to plan ahead as in Britain's 500-year plan. The 2022 flood losses might be higher than that of 2012 which recorded $16.9 billion losses (Oladakpo, 2022). The Lagdo dam in Cameroon, built in 1982, released devastating floods into Nigeria through River Benue in 2012 and 2018. In 2022, Nigeria recorded over 600 deaths due to floods (Imonikhe, 2020). The Federal Government of Nigeria

launched a National Policy on IDPs, yet Internally Displaced Persons are on the increase in 2022 in Nigeria due to increasing flood disasters.

The Federal Government of Nigeria repealed the Federal Environmental Protection Agency Act and enacted the National Environmental Standards and Regulations Enforcement Agency (Act, 2007). The Act is charged with the responsibility of protecting the environment, including mitigation of negative effects of flood hazards. Inter-governmental cooperation in the management of flood disaster remains poor, which forms the basis of this study.

Flood management has faced several daunting challenges with increasing flood disasters in Nigeria due to the weak nature of inter-governmental cooperation. In Nigeria, 436 local government areas in 33 states, in 2022 were ravaged by floods with over 300 hundred deaths (NEMA, 2022). Climate change and global warming have contributed to huge torrential downpour. These cause perennial flood in Nigeria. In Bayelsa State alone 11,000 IDPs were housed in Oxbowlake camp (Bayelsa State Emergency Management Agency, 2022). States and Federal governments in Nigeria are not taking enough necessary precautions to deal with management of flood disasters. Despite the sufficiency of institutional (NEMA) and legal (National Emergency Management Agency Act 12 of 1999) frameworks for managing flood disasters in the study area, and the huge funds provided by the Ecological Funds Office (EFO) for National Emergency Management Agency (NEMA), there is persistent reoccurrence of flood disasters which affected the study area in 2012, 2020, and 2022. Again, there are limited studies which focus on inter-governmental cooperation in the effective management of flood disasters in the study area (Anambra and Kogi States). This study stands to bridge this gap in literature by focusing on the following questions: is inter-governmental cooperation positively correlated with the effective management of flood disasters in the study area? What is the role of NEMA in the management of flood disasters in the study area? Are there sufficient institutional and legal frameworks for the effective management of flood disasters in the study

area? The objectives of this study are as follows: to investigate inter-governmental cooperation in the effective management of flood disasters in Kogi and Anambra States of Nigeria, assess the role of NEMA in the effective management of flood disasters in the study area, and to find out the institutional and legal frameworks for managing flood disasters in the study area.

Hypothesis

The following hypothesis guide this study:

H_R: There is a significant relationship between inter-governmental cooperation and effective management of flood disasters in Kogi and Anambra States.

H_O: There is no significant relationship between inter-governmental cooperation and effective management of flood disasters in Kogi and Anambra States.

Theoretical Framework

This study is anchored on two theories in the midst of several other theories. The two theories used in this study are: (i) Structural – Functional theory, and (ii) System theory. These are further explained below:

(iii) Structural-Functional Theory

The entire units that constitute the sum of a system, according to Fred Riggs, are structures. These structures perform specific functions to ensure the smooth delivery of services to the public. Major proponents of Structural-Functional theory are Almond and Genco (1977). Structural-Functionalism or simply called Functionalism comprises the relations among government institutions (such as NEMA) and subsystems such as intergovernmental relations, with the goal of achieving desired targets through an institutional arrangement that perform certain functions in order to operate efficiently. It tries to explain how structures operate in a society, the various parts, and the institutions that combine to create a stable society over time. According to Hardgrave et al (1973), the premises of structural-functional are (i) emphasis on

the whole system as the unit of analysis, (ii) postulation of particular functions as requisite for the maintenance of the whole system, and (iii) demonstration of the functional interdependence of diverse structures in the whole system.

(iv) System Theory

Easton (1953), cited in Paki, et al. (2020), defined the political system as "that system of interaction in any society through which binding or authoritative allocation of value are made". A system is a whole which is made of many parts. The political system, according to Easton (1953), takes inputs from society (environment), which consists of demands and supports that are converted in the political system ("Black Box") as outputs in the form of policies such as the National Emergency Management Agency's Act No.12, (1999). The feedback mechanisms return outputs to the system as inputs. It is thus cyclical. An example of such policies is the flood policy in Nigeria meant to tackle flood disasters. Due to the flood disasters in Nigeria in 2022, the Federal House of Representatives mandated former President Muhammadu Buhari to release ₦100 billion to mitigate flood disasters nationwide and another N200 billion through Ecological Funds Office for 2023 for management of flood disasters (Silverbird FM News, 15th November, 2022).

In addition, the system theory was enunciated by David Easton, who believed that different people in different units or levels play complementary roles to form a system. Different units and their associated functions merge together to form a political system as a whole body.

The National Emergency Management Agency (NEMA) Act 12 as Amended by Act 50 of 1999

The objectives, functions and powers of National Emergency Management Agency Act No. 12 of 1999 are as follows:

(a) Formulate policy on all activities relating to disaster management in Nigeria and co-ordinate the plans and programmes for efficient and effective response to disasters at national level,

(b) Co-ordinate and promote research activities relating to disaster management at the national level,

(c) Monitor the state of preparedness of all organisations or agencies which may contribute to disaster management in Nigeria,

(d) Collate data from relevant agencies so as to enhance forecasting, planning and field operation of disaster management,

(e) Educate and inform the public on disaster prevention and control measures; and

(f) Co-ordinate and facilitate the provision of necessary resources for search and rescue and other types of disaster curtailment activities in response to distress call.

Facilities and Infrastructures NEMA Adopts for Coordinating Disaster Management

Mission Control Centre (MCC)

The Mission Control Centre located in the Headquarters of NEMA is a computer-based satellite technology that uses the COSPAS-SARSAT hi-tech system/facility. The system is designed to pick distress alerts and location data to assist in Search and Rescue Operation, using spacecraft and ground facilities to detect and locate the signals of distress beacons operating on 406 MHz. When there is a distress alert from the beacon located on a ship or aircraft, the satellite system transmits the signal to the ground segment facilities from where the data is processed and transmitted to the appropriate Mission Control Centre (MCC). The MCC now alerts the nearest Rescue Coordinating Centres (RCC) or Disaster Reaction Units (DRU) of the Army, Air Force, and the Navy for appropriate and immediate action.

Geographic Information System (GIS)

The agency has established a functional GIS lab for early warning and precision in response to the management. The lab collects spatial data, analyses and prepares useful information that helps to aid responses to disaster. It is one of the significant facilities of the agency for its disaster-risk reduction programme.

Mobile Clinics

Time is a crucial element in disaster management. In recognition of this, the agency obtained approval and procured facilities for mobile clinics that have been strategically stationed in Abuja, Kaduna, Lagos and Port Harcourt to be deployed in the event of any major disaster. While arrangements are on to acquire more of the clinics, the agency has so procured a good number of ambulances stationed in Abuja and all the six zonal offices.

Helicopter for Search and Rescue

The agency has in place, a helicopter for search and rescue. The helicopter is stationed in Abuja and manned by Officers of the Nigerian Air force. Necessary arrangements are being concluded to acquire additional helicopters which they hope that with time, there would be one for each of the six geo-political zones (http://www.nema.gov.ng/index.htm).

Literature Review

Inter-governmental relations affect the effective management of flood disasters. In federalism, who should do what? What levels of government should be responsible for what areas of the flood policy? Who gets what? These are questions raised by Henry (2013, p. 425). In Nigeria, National Emergency Management Agency Act No.12 of 1999 recognises three levels of government for implementation. These are federal, states and local government.

Henry (2013) has stated that the administrators interact through all governmental levels, with such intergovernmental relations featuring financial, legal, political and administrative relationships among all units of government possessing varying degrees of authority and autonomy. He defined intergovernmental administration, sometimes called intergovernmental management, as the management and coordination of the relationships among governments for the purpose of achieving specific policy goals (such as the management of flood disasters in Nigeria by NEMA in both Kogi and Anambra States). Some systemic findings about federal by Henry (2013) include (1) nations with federal governmental structures are associated with less political corruption; (2) federal system delivers services more efficiently than unitary ones; (3) the more the public spending is decentralized, the faster that its governments grow; and (4) the greater the degree of fiscal decentralization in an American state, the higher the level of public trust in government.

Similarly, Ajimotokan (2022) stated that although there are distinct national and state responsibilities, the constitution deals with the integration of national and state governments by providing for collaboration among them in the performance of vital functions. For example, the states and local governments in Nigeria cooperate with the federal government to implement the NESREA Act No.20 of 2007 and NEMA Act No.12 1999 among other laws, to manage flood disasters. The states are seen as the "laboratories of democracies" in that the states adopt innovative policies in the United States. The states ought to get more. In a world turned upside down, Washington (federal) spends 55% of all government's outlays; the 50 states spend 25% and the nation's 89,476 local governments account for 20% (Henry, 2013). In Nigeria, under the prevailing revenue allocation formula, 2.32% of derivation funds are set aside for ecology and disaster management. Of this amount, the 36 states and FCT get 0.72%, the 774 local government get 0.6%, adding to 1.32% leaving a balance of 1% to the Federal Government of Nigeria.

Furthermore, the three tiers of government in Nigeria – federal, state and local government appear not to be able to adequately deal with the yearly disastrous flooding in the country despite the flood policy and numerous ministries and agencies at the federal and state levels that deal with management of flood disasters, which calls for this study. Disasters, unexpected happenings, lead to situations where affected victims are helpless and unable (or not willing) to protect themselves (Adeoye et al., 2009). Problems therefore arise from lack of proper management of flood disasters by government (Orizu, 2022). Why do we have constant disastrous flooding in Nigeria despite the NESREA and NEMA Acts?

Empirical survey by Imonikhe et al. (2020) featured 1000 respondents from Anegbette, Osomegbe and Udakpa communities in Edo State. The study used the scientific and quantitative research design. The multistage sampling technique which embraced random and stratified methods was used. The study revealed that the government gave some financial assistance to the victims in these three communities, but the assistance was very inadequate. The flood disasters were higher than what the people could bear alone. The help rendered by the government to these residents did not make a significant impact or difference in the lives of these flood victims. There is thus a gap in public policy as government aid did not ameliorate the harsh effects of flood disasters originating from tremendous overflow of River Niger.

Disasters are unexpected events which affect nearly all the countries of the world. Evidences show that in the last decade, natural and human disasters have claimed more than 600,000 lives and affected more than 2.4 billion people worldwide (Adeoye et al., 2009). In the same vein, Agbama (2022) stated that between 2005 and 2015, over 700 people around the world lost their lives to disaster. The occurrence of different forms of disasters in Nigeria has increased over the last decade. These disasters feature industrial pollution, solid wastes in cities, heavy floods due to climate change, desertification, climate change-induced diseases,

drought, land degradation, gully erosion, fire outbreaks, collapsed buildings, political conflicts, and threat to oil and gas installations (Madugu et al., 2015).

In all, the National Emergency Management Agency (NEMA, 2022) reported that "five died in Lagos, Ogun floods" (*The Nation*, July 14th, 2022). According to the National Emergency Management Agency (NEMA, 2022), Nigeria lost ₦2.29 trillion to the 2012 floods in Nigeria, described as the worst incidents in the history of Nigeria (Nwodim, 2016, p. 54). The role of government in the formulation and implementation of public policies for mitigating climate-related disasters such as flooding cannot therefore be over-estimated in Nigeria. The Bayelsa State Taskforce on Flood Mitigation and Management in liaison with State Emergency Management Agency has established camps for Internally Displaced Persons (IDPs) and provided relief materials to flood victims (Oyadongha, 2022).

Materials and Methods

Research design is empirical survey which relied on data from the field. This was complemented by qualitative data from secondary sources such as books and journals. A population of 4300 NEMA staff in Anambra and Kogi States of Nigeria was used in this study. A sample size of 430 was used in this study. Yamani's formula was used to calculate the sample size. The calculated sample size of 45 persons was not enough. 10% of the total population was therefore used in line with (i) law of statistical regularity, and (ii) law of large numbers (Oaikhena, et al., 2004). Yamani's formula for calculating sample size is:

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

n = sample size

N = population size

e = desired level of precision

Population = 4300

$$\frac{4300}{1+4300(0.05^2)}$$

$$= \frac{4300}{1+4300(0.0025)}$$

$$= \frac{4300}{1+94.0675}$$

$$= \frac{4300}{95.0675}$$

$$= 45.23$$

$$\approx 45 \text{ persons}$$

Furthermore, the simple random sampling method involving lottery method was used. States (Kogi and Anambra) and agency (NEMA) were purposively selected. 430 questionnaires were used to gather field data. In-depth interviews were also used to gather responses from heads of NEMA in Anambra and Kogi States. Online interviews were used when physical contacts were not possible. 418 questionnaires were retrieved and 12 questionnaires were lost (see Table 1). The chi-square and Crammer's V were used to analyse data for this study. One hypothesis was tested (See Tables 1,2 and 3).

Table 1: Questionnaire Distribution

State	Questionnaire
Anambra	221
Kogi	197
Total	**418**

Source: Fieldwork, 2023).

Hypothesis Testing

H_R: There is a significant relationship between intergovernmental cooperation and effective management of flood disasters in Kogi and Anambra States.

H_O: There is no significant relationship between intergovernmental cooperation and effective management of flood disasters in Kogi and Anambra States.

Table 2: Contingency Table

State	Agree	Disagree	Total
Anambra	191^a Fe = 167.60	30^c Fe = 53.41	221
Kogi	126^b Fe = 149.39	71^d Fe = 47.60	197
Total	**317**	**101**	**418**

Source: Fieldwork, 2023

Expected frequency (fe) = $\frac{rt \times ct}{ot}$

rt = total

ct = column total

ot = overall total

Table 3: Chi-square computation

	Fo	Fe	Fo-fe	$\frac{fo-fe}{fe}$	$\left(\frac{fo-fe}{fe}\right)^2$
a	191	167.70	23.4	0.139	0.019
b	126	149.39	-23.39	-0.156	-0.024
c	30	53.41	-23.41	-0.438	-0.191
d	71	47.60	23.4	0.491	0.241
					$\sum = 0.045$ $\chi^2 = 0.045$

Source: Fieldwork, 2023

Formula Chi-square (χ^2)

$= \left(\frac{fo-fe}{fe}\right)^2$

Fo = observed frequency

Fe = expected frequency

Interpretation

The calculated χ^2 of 0.045 is less than the critical value of df = 1, alpha 0.001 which is 10.827.

Degrees of freedom

= (r-1)(c-1) = (2-1)(2-1)

= 1 x 1 = 1

Decision Rule

We accept the hypothesis as the critical value is greater than the computed value. This means that there is no significant relationship between inter-governmental cooperation and the effective management of flood disasters in Kogi and Anambra States.

Crammer's V

$$= \sqrt{\frac{x^2}{nt}}$$

n = total sample

t = smaller of (r-1)(c-1)

$$= \sqrt{\frac{0.045}{1\times 418}} = \sqrt{\frac{0.045}{418}} = \sqrt{1.07\times 10^{-4}}$$

$= 1.03 \times 10^{-4} = +0.000103$

Cramer's V value of 0.000103 shows a positive direction of relationship.

Discussion of Findings

The following findings emerge from this study:

Tables 2 and 3 showed an acceptance of the null hypothesis that there is no significant relationship between inter-governmental cooperation and the effective management of flood disasters in the study area. The calculated χ^2 gave a lower value of 0.045 (empirical value) as against the tabulated value of 10.827 (theoretical value) at 0.001 level of significance using Chi-square (χ^2). The Crammer's V value of +0.000103 shows positive direction of relationship. This shows that the different state governments (Kogi and Anambra States) do not collaborate well in the management of flood disasters. This hampers the effectiveness of NEMA in the study area. More collaborative agencies and offices are needed to serve as organs and structures to effectively manage flood in the study area in accordance with Structural-Functional theory.

Notably, Agbama (2023) in an in-depth interview said governments at different levels are putting up efforts in proper management of flood disasters in the study area. He said intergovernmental relations could be improved upon to boost efficiency in managing floods.

He said the state governments ought to enforce town planning laws so that people will not block waterways, build on flood plains and erect physical structures on water-catchment areas. Unfortunately, he said most governments are not collaborating well with each other to effectively manage flood disasters in the study area.

Sequel to the above, Henry (2013) has interrogated the need to identify which level of government should be responsible for what area of the flood policy. Put differently, which level of government should handle the various stages of policy implementation and different components of flood management? Policy stages include formulation, implementation and evaluation/assessment. This study reveals that the Federal Government through NEMA is mostly responsible for the formulation of the National Emergency Management Agency while the state and local governments are in charge of the implementation of this NEMA law Act No.12, 1999. NEMA serves as the major formulator and coordinator of this NEMA law. This is expressed in the following key objectives and functions of NEMA which read:

> To formulate policies relating to disaster management and coordinate the plans and programmes for efficient and effective response to disasters at national level

The implication of the above objective is that the other levels of government (36 states and 774 local governments) plus the Federal Capital Territory (FCT) should formulate and implement flood management policies in their domains. This is especially so because of the fact the floods occur mostly at the state and local government levels.

NEMA has made some efforts in the management of flood disasters in Nigeria. This shows that the NEMA Law, Act No. 12 (1999) is effective in terms of management of flood disasters in the study area. However, NEMA law needs only an improvement to help her do serious enforcement.

Institutional and legal frameworks are sufficient for the effective management of flood disasters in the study area. Tangibly, the system theory lends support to the findings that the

NEMA Act No.12 (1999) has made positive impacts on the management of flood disasters in the study area. Easton (1953) believes that a political system is a system of interaction whereby inputs from the society or environment which consist of demands and requests are converted in a "black box" into functional policies and good solutions for the people. In this case, the requests or demands from the people in the flooded areas are (i) early warning and preparation, (ii) mitigation of flood disasters to lessen harm and loss of lives and properties, (iii) response to do quick search and rescue to save people from dying, and (iv) recovery by helping to distribute relief materials and rehabilitate the flood victims in the study area (Agbama, 2022). The National Emergency Management Agency through the NEMA Law (Act No.12 of 1999) has been addressing all these issues well through her coordination of all stakeholders in the management of flood disasters in a multi-sectorial manner.

Madugu, et al. (2015) listed the achievements of NEMA so far in the study area as: (i) search and rescue, (ii) development of GIS and early warning system, (iii) provision of relief materials, and (iv) establishment of Disaster Response Units and Seven Zonal NEMA Offices in Nigeria.

Relatedly, substantive policy indicates "what to do" which leads to the allocation of values and resources to curb flood disasters. NEMA law is identified by Cochran, et al. (2014) as a procedural policy which means the setting up of an agency such as NEMA to solve the identified flood problems. Thus, a procedural policy answers the question: "how to do it". This study reveals that NEMA is well equipped to manage flood disasters in the study area. Despite the poor social norms of the residents who build on flood plains and water channels and block gutters with refuse, NEMA was still able to carry out her functions well (institutional theory) between 2010-2022.

Extracts from an in-depth interview with Agbama Desmond (2023) – Director, Relief and Rehabilitation, Edo State SEMA is given below. In the words of Agbama (2023):

> NEMA has been promoting disaster management in all sectors. NEMA as a coordinating agency has been coordinating stakeholders to tackle the problems of flood disasters in Nigeria in a multi-sectorial manner. NEMA has done well in the management of flood disasters in Nigeria but needs improvement.

In conclusion, the Structural-Functional theory by Almond, et al. (1977) postulates that the system is composed of structures and that these interacting structures perform different functions. Similarly, in this study, the society is made up of structures in the form of government ministries and agencies which work together for the smooth management of flood disasters in the study area. Tangentially, these ministries and agencies synergize to implement flood management policies in the study area – Anambra and Kogi States. One of such crucial and pivotal agencies is the National Emergency Management Agency (NEMA). Other viable agencies are the National Environmental Standards and Regulations Enforcement Agency (NESREA), State Emergency Management Agency (SEMA) and Local Emergency Management Committee (LEMC), etc. These agencies and committees interlace with other stakeholders such as the Fire Service, Federal Road Safety Corp (FRSC), the Nigerian Army, Ministry of Health, Ministry of Environment, and Ministry of Agriculture, etc to assist NEMA in effective management of flood disasters in the study area.

Summary of Findings

There is no significant relationship between intergovernmental cooperation and the effective management of flood disasters in the study area. NEMA is adjudged to be doing well in the management of flood disasters in the study area. In addition, Institutional and legal frameworks are sufficient for the effective management of flood disasters in the study area.

Conclusion

Disastrous natural and human-induced events are on the increase globally and within Nigeria. Flood disasters in particular have wreaked havoc on many states in Nigeria including the study area – Kogi and Anambra States. Only few studies have addressed the issue of inter-governmental cooperation in the management of flood disasters in the study area with focus on NEMA. This forms the basis of this study which aims at bridging this gap in literature. The theoretical framework is anchored on System Theory and Structural-Functional theory. The research design is empirical survey (quantitative method) complemented by qualitative method. The questionnaire was used to gather data. The population is made up of 4300 NEMA staff. The sample size is 430 selected through simple random sampling method. States and agency (NEMA) were purposively selected. Data analysis involved the use of Chi-square, frequency tables and Crammer's V. One hypothesis was tested. Findings from this study reveal that there is no significant relationship between inter-governmental cooperation and the effective management of flood disasters in the study area. The study proffered solutions to the identified problems.

Recommendations

The study recommends the strengthening of intergovernmental collaborations in the management of flood disasters in Nigeria. Improvement in institutional and legal frameworks in the study area is recommended to include preventive measures, such as awareness campaigns and enforcements of environmental laws. In all, funding of NEMA and collaborating state agencies should be improved upon.

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