

Inter-organizational collaboration during emergency response: A case study of 2016's Hurricane Matthew in Haiti

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Abstract

This paper aims at exploring inter-organizational collaboration during emergency response at local level. Specifically, this paper analyzes collaborations between public, private, and non-governmental organizations that evolved in response to 2016 Hurricane Matthew, in Haiti. While governments play a large role in responding to disasters and managing recovery, many disasters are far too large and complex to handle by themselves. That's where inter-organizational collective action comes to assist and support the relief of the victims. However, considering how problematic disaster collective response action was during the 2010 earthquake in Haiti, this study is guided by the desire to explore what exactly was accomplished on the ground during Hurricane Matthew in terms of efficiency and satisfaction. Moreover, the use of communication and information is also investigated. Research findings revealed that: a) the destruction of information infrastructures hampered communication efficiency; b) the Directorate for Civil Protection (DPC) failed as main national disaster agency to coordinate all the sectors; c) and finally, a lack of leadership and trust were found between involved organizations. The author recommends the use of smart technologies to enhance communication structure, and advocates for a new collaborative culture built on trust and transparency between stakeholders.

Keywords: Inter-organizational collaboration, Information, Hurricane Matthew, emergency response.

1. Introduction

While governments play a large role in responding to disasters and managing recovery, many disasters are far too large and complex for them to handle by themselves. Disaster response is collective and that's where inter-organizational action comes to assist and support the relief of the victims. Collaborative efforts are not a new way of dealing with disaster and their importance during emergency response has been highlighted by many researchers [4,10]. Collaborative efforts have proven to be a reliable tool for minimizing the impact of the disaster and increasing the effectiveness of the response [2,8]. According [3] framed the possible arrangement of these organizations or structures into four categories. The first are "established" organizations that undertake tasks such as managing fire or closing roads, or government agencies involved in disaster management. Second, are "expanding" organizations that consist of a small standing organization or a larger group of trained volunteer's. Third, are "extending" organizations that perform task outside of their daily routine. Fourth are "emergent" groups such as community and volunteers that perform the non-regular task. This study focuses on the first category of organization and evaluates the performance of the Directorate for Civil Protection (DPC) primarily in charge of the risk and disaster management in Haiti. Considering how problematic disaster collective response action was during the 2010 earthquake in Haiti, this study is guided by

the desire to explore what exactly was accomplished at local level during Hurricane Matthew in terms of efficiency. Although the response was massive in the 2010 earthquake, the United Nation cluster and the leadership were insufficient from strategic to tactical operations with the overwhelming of organizations [9]. Therefore, the purpose of this study is to investigate the efficiency of inter-organizational interventions during 2016's Hurricane Matthew in Chardonnières, Haiti. This study will trigger further improvements in collaboration in Haiti's disaster management system. The use of information and communications as a significant way to improve inter-organizational cooperation is also investigated. The study methodology drew on primary and secondary data sources.

1.1. Case background

Of the small island developing states, Haiti is the most vulnerable country in Latin America and the Caribbean region. With a Human Development Index (HDI) ranking of 170 out of 180 countries and a Gross Domestic Product (GDP) per capita of US 1,149.50 in 2020, it remains also the poorest country in the Western hemisphere (World Bank, 2020). Exposure to natural hazards includes tropical cyclones, floods, environmental degradation, and drought. At least 96% of the population lives under the threat of two hazards and the lack of coping capacity remains high. Certainly, Hurricane Matthew could not have occurred in a more vulnerable environment. On October 4, 2016, Hurricane Matthew wreaked havoc devastation in Haiti as the country barely recovered from the 2010 earthquake. It was the strongest hurricane to make landfall in Haiti in over 50 years causing widespread wind damage, landslides, coastal surges, subsequent flooding, and displacement. According to OCHA, approximately 20% of the population (2.1 million) were affected by the storm, 546 people were reported dead, 1.4 million required immediate humanitarian assistance, and over 175,000 were displaced in evacuation shelters. Losses and damages were evaluated around 32% of Gross Domestic Product [7].

1.2. Operating disaster risk management model in Haiti

The organization of the national disaster risk management system in Haiti has a complex structure. Under the supervision of the Ministry of the Interior and territorial Authorities (*Ministère de l'Intérieur et des Collectivités Territoriales-MICT*), The Directorate for Civil protection (*Direction de la Protection Civil- DCP*) remains in control of the coordination of disaster management in general. The DPC looks after the implementation and design of the National Disaster Risk management System (*Système National de Gestion des Risques et des Désastres-SNGRD*). The National Committee for Disaster Risk Management (*Comité National de Gestion des risques et Désastres-CNGRD*) chaired by the Prime Minister is the highest unit of SNGRD. During disaster response, CNGRD focus on the organization, coordination, and planification of all interventions to reduce the impacts. All technical interventions are carried out by the Emergency Operation Center (*Centre*

d'Urgence –COU) and coordinated by the Permanent Secretariat. Thematic committees from civil society and international committees to establish a plan to manage risk and disaster are also part of SNGRD.

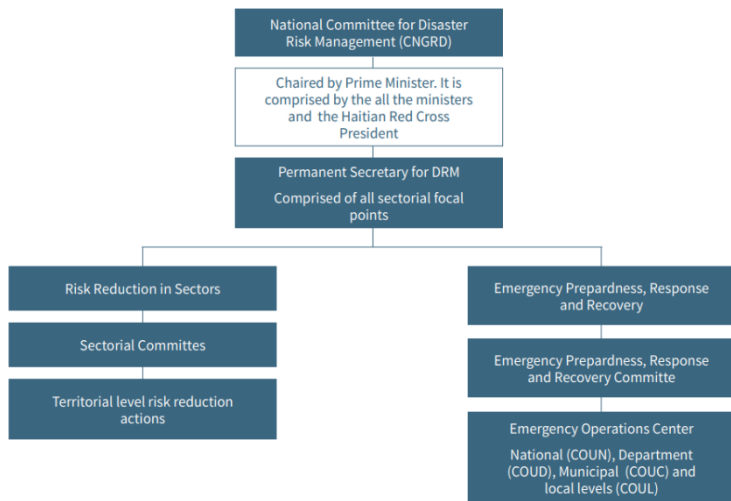


Figure 1. SNGRD Organizational plan / Source from Ministère de l'intérieur et des collectivités territoriales

One of the axes of the SNGRD is decentralization. In end, the creation and strengthening of risk and disaster management committees at departmental, municipal and local levels become the most important action of the plan. At the local level across the country, there are 176 committees for a total of 575 communal sections. When an imminent event is announced, the SNGRD is transformed into Local Civil Protection Committees (*Comités Locaux de la Protection Civile-CLPC*). The CLPC, formed by volunteers, has a participatory character with public authorities such as the Administrative Council of the Communal Section (*Conseil d'Administration de la Section Communale-CASEC*), the Police, the Ministry of Justice and Peace, the Haitian red cross, and local organizations. The committee is responsible for establishing a specific action plan for risk and disaster management.



Risk and Disaster Management Committee at local level

June 2017

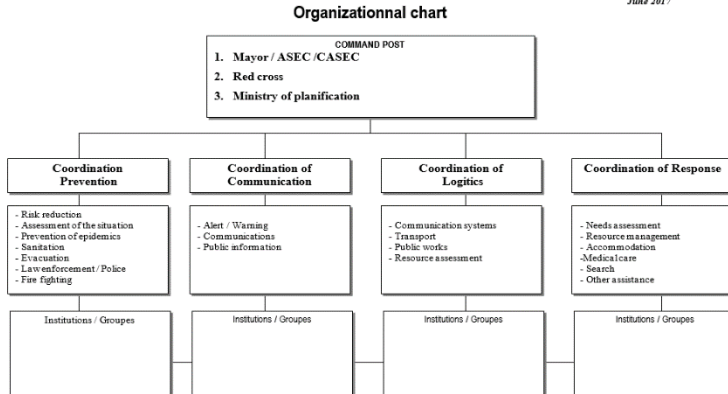


Figure 2. Risk and disaster management committee at local level. Source from DCP

1.3. Background of the site

In this study, the communal section which is the smallest administrative territorial entity of the Republic of Haiti (Const.1987 art 62) is considered as local level. Its administration is ensured by a council (CASEC) of three elected by universal suffrage. The commune of Chardonnières, located in the south department, with a population of 25.240 inhabitants, is bordered by the Massif de la Hotte Mountains on the northward, the town of Port-à-Piment on the east, and the Caribbean Sea lying southward. The sea almost surrounds Chardonnières, giving it an island-like feeling. It is divided into three communal sections: Randel, Dejoie, and Bony. Bony, the third communal section, is considered as study area for data collection with a population of 3962 inhabitants. The total area is 19.88 km² or 7.68 mi². The locality is recognized as a producer of grapes. The communal section is not electrified. In terms of economic and financial infrastructure, it has a hotel and two marketing cooperatives. Its dominant relief is the hills. The climate is dry and at the top of the watersheds and micro-watersheds, erosion is more present due to poor agricultural practice and the logging method. More than 90% of constructions are traditional (Foundations + raised cement paving / wooden posts + rock infill wall linked to cement mortar / wooden frame + sheet metal roofing) and do not or poorly resist natural disasters.

This is why during Hurricane Matthew, 80% of houses were damaged or heavily damaged, including 10% destroyed and more than 1500 families were victims.

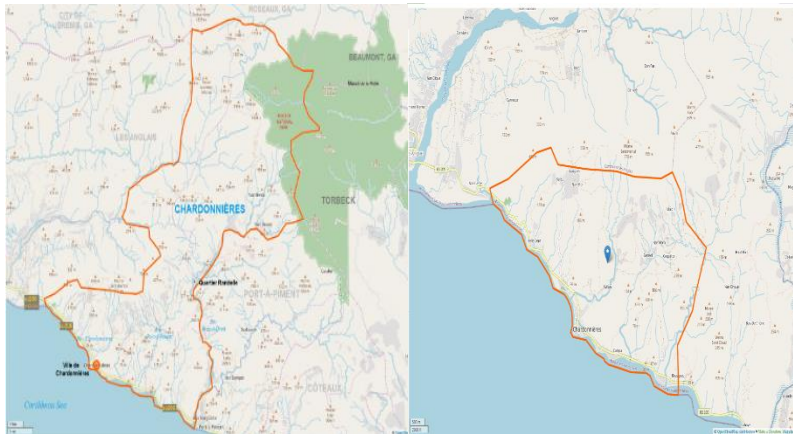


Figure 3. Location of the study site, source from OpenStreetMap

2. Research design

This research uses a qualitative approach rather than quantitative. The quantitative approach through creating numerical data is often unreliable and unavailable at a local level in Haiti. To explore the inter-organizational collaboration develop during hurricane Matthew, in-depth interviews were conducted in Chardonnières. The rationale for choosing the interview as a research method was because of its flexibility. For this study, open-ended questions were used in the questionnaire because it gives the interviewee opportunity to respond in their own words. Before the interview, participants were informed about the research purpose and procedure through a cover letter. Interviewees were recruited through the Directorate for Civil Protection (DPC). Participants represent people that take a leading role in directing overall response operations, making decisions, and inter-organizational environments within the organization. 8 interviewees in total took part in this study; 3 from the DPC, 2 from elected official local government, and 3 from important organizations likely to participate in disaster response. Interviewee A1, A2, and A4 represent staff members from the office of civil protection. Their role included notification, activation, mobilization, deployment, and facilities during Matthew. Interviewee B1 and B2 refer to elected politicians, especially the ones that have the authority with the Mayor, to activate the disaster risk management committee. Finally, the last group of interviewees, C1- C3, is formed by Non-Governmental Organizations (NGO) partners likely to share their experiences, accomplishments, and lessons during Hurricane Matthew. The most important one is the Haitian National Red Cross, which is officially recognized as an auxiliary of the public authorities in Haiti. The interview lasted 20-60 minutes and was audio-recorded for later analysis. Data transcripts were read carefully, and corrections of errors were performed as appropriate. After data translation, initial themes were reexamined and data were interpreted by developing themes or thematic categories. Due to Coronavirus Disease

2019 (COVID-19) pandemic and travel restrictions, online interviews through phone calls were the major research method employed for primary data collection. Second-hand data through newspapers, previous studies, websites, and government reports also contributed to this study. Basic information of interviewees is shown in Table 1. Names are withheld for privacy problems.

Table 1. Basic information of the interviewees

Coded name	Location	Profession	Meeting place
Directorate of civil protection			
A1	Bony	Head of the Response	Phone interview
A2	Bony	COUL representative	Phone interview
A3	Bony	Special chief	Phone interview
Local government			
B1	Bony	CASEC	Phone interview
B2	Bony	ASEC	Phone interview
Non-Governmental Organizations			
C1	Bony	RED CROSS	Phone interview
C2	Bony	SAMARITAN PURSE	Phone interview
C3	Bony	REACH	Phone interview

Source from the author

3. Research findings and discussion

3.1. Information and communication

When a weather-related disaster event is approaching, the early warning system gathers information through multiple steps, agents, and communication channels. The Haiti Hydro-Meteorological Unit (UHM) is responsible to interpret weather-related forecasts. Then, practically all activities are shut down and all schools banks, public transportation, and government offices are closed.

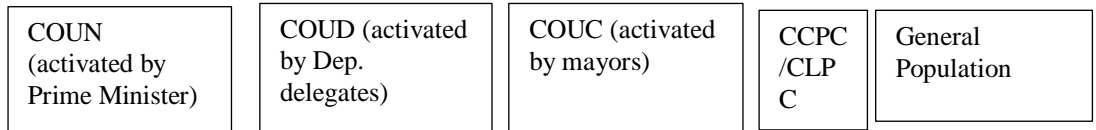


Figure 4. Information flow during Hurricane Matthew source from World Bank

As soon as hurricane information was received from the central government 48 hours before, The DPC distributed it to their Local Civil Protection Committee (CLPC) to share it with community residents. Below are the various communication channels they used.

Table 2. Various communication channels source from World Bank

CHANNEL	PROCESS
Radio/ TV/Website	Early Warning System messages were broadcast on commercial and community radios both FM and AM.
SMS	CONATEL send SMS to cellphones
Announcements in public spaces	Dissemination through schools, churches, and markets.
Megaphones	Volunteers drive around the community with megaphones.
Flag system	Flags of three colors (red, yellow, and green) to raise to communicate flood warning.

Efficiency

An organization can respond to a disaster successfully depending on the state of internal information and communication system. Internal information and communication system are connected not only to technological capacity but also to their structure, goal, culture, and administrative strategies. On paper, the country communication plan works. However, there are still no reliable and effective methods to communicate information to organizations at the local level. At local level, the DPC is represented by the *Local Civil Protection Committee (CLPC)* The committee comprises unpaid volunteers who are

involved in public authorities (Mayor, CASEC, police, and justice department), civil society, and local organizations. Their duties included disseminating early warnings, evacuation, providing first aid, and assessing loss under the supervision of DPC. For the first couple of days, the CLPC was disorganized and non-operational. The state government generally views Information Communication Technology (ICT) as an overhead than a fundamental strategy. When it comes to training, buying materials, or supervision they also receive little attention. They are really few resources that can be used to address organization-wide infrastructure needs. During Matthew, internal communication and information sharing were weak. The actors were overwhelmed by the insufficient staff training and preparedness. Moreover, their lack of budget limited their ability to fulfill roles such as maintaining communication and comprehensively coordinating during the disaster.

Interviewees A1 & A2 explained, "*Communication was the biggest issue during the response phase. The DPC could not get in touch with local representatives and leaders when the networks of Nactom and Digicel stopped working*". According to interviewee A3, information was predominantly shared by WhatsApp and was therefore easily lost. Hurricane Matthew destroyed an unprecedented portion of communication infrastructure and local emergency services. The south part of the country was unreachable during the first three days after the disaster. Cell towers, broadcast communication, radio stations were also destroyed. Because the community is not electrified, the telephone, online platforms, and television-based emergency response system could not meet the needs of residents and responders. The author also noticed that due to insufficient lines, there was also saturation of the mobile phone network.

Interviewee A2 explained, "*We did not have access to important communication technology such as satellite phone. Additionally, the only road linking the capital to the southern part of the country was washed away by the rains*". From the above mentioned, it can be implied that the local government did not have a comprehensive strategy to improve operability and interoperability between organizations involved in the response. Reports about the real-time situation in the community could not be sent to the upper administrative level. Existing information was scattered and unreliable. Sending assessment teams to a site without accurate information was difficult.

Without timely updates and reports, communication was not operational among the community and potential donors in the emergency response system. This poorly managed information raised concerns about the reliability of the DPC on gathering real-time data information during the response phase. The hurricane destroyed communication infrastructure and left emergency response personnel and the public with little capacity to exchange information. Only, United Nations agencies had the necessary equipment such as satellite phones and helicopters. They were the ones who were able to reach the community and supported two-way communication among residents and responders by taking pictures and submitting the report to the DPC.

3.2. Inter-organizational collaboration

Disasters often lead to new social structures. One facet of this reorganization is the mobilization of organizations to respond to the impact of the event. During Hurricane Matthew, it was found that inter-organizational collaboration ran into a lack of leadership, trust, and exclusion of local organizations during Matthew. The initiatives came from public, private, and NGO sectors. The cluster approach was denied due to its failure in the 2010 earthquake response.

Efficiency

A significant challenge for the author while studying inter-organizational collaboration was identifying participating organizations during the disaster response at the local level (see table 2). This is why our investigation in this study focuses on the DPC as main leading governmental agency in the country. Interviewee A1 stated, *"Until now, the CLPC is unable to provide how many organizations were involved during hurricane Matthew's response. Honestly, we played a spectator role"*. The humanitarian pipeline managed by the International Organization for Migration (IOM) has provided a number of 28 Haitian partners and 40 international partners involved. One sure thing, the amount of organization involved in the response was lower compared to the 2010 earthquake. Indeed, many organizations were mobilized because they were involved in the response, however, without direct cooperation with other local organizations.

Findings revealed different forms of inter-organizational cooperation during Mathew: Cooperation among DPC and NGOs; between local and central government. According to the disaster risk management organizational chart at an operational level, the most critical agency is the DPC represented by CLPC at local level. The DPC is a central directorate of the Ministry of Interior and Territorial Authorities (MICT). It is the leading agency concerned with risk and disaster management throughout the country. It's important to highlight that this 24-year-old agency does not have an operating budget and lacks the financial and technical capacity to play its role. Everything comes from partnership. Interviewee A1 admitted, *"until now, the DCP does not have any physical facility. We rely on the project with partners and their donations for all necessary materials and equipment"*.

During the first week of the crisis, strategic and operational coordination meetings were organized. However, the DPC left private aid organizations to coordinate themselves. Since these organizations worked alone, they also competed with each other and operated without coordination. Most of them did not have an institutional behavior which means they did not have a functional structure, an execution plan, activity schedule, and periodic evaluation report. They were just there to spend money. International organizations worked alone. It can be implied that the DPC was not included in the decision-making part. The author believes that inclusion is not about meeting up with national agency or supporting them during aid distribution. Inclusion is about sharing management. The final purpose of

inclusion is to build resilience. Interviewee E4 stated, *"We were not included and did not receive even any report from NGOs working on the ground. They only submit their report directly to OCHA"*. Foreign NGOs usually operate with relative impunity in Haiti because they provide good jobs even to the people within the state. Participants B1 & B2, mentioned NGOs spending a significant amount of aid donation in hiring high-paid staff while having local organizations that could have undertaken the same task more effectively. This is why despite the use of funds, these entities appeared to have a lack of transparency and accountability. Local organizations even sent calls on social media to avoid people from abroad donating to the Haitian Red Cross because of past failures. Thus, the dilemma is both the agency and the government have become dependent on them. So, who should hold the NGOs accountable? The author noticed it's the government that was accountable to international donors instead of the other way. Therefore, collaboration with international agencies resulted in more frustration for the local community.

The author also found that inter-organizational collaboration at the local level ran into a lack of leadership. Due to low education levels, local government representatives did not fully understand their role in disaster management committee. Interviewee A1 stated, *"according to the DPC flow chart, the department is led by the delegate, the Mayor leads the communal, and the CASEC leads communal section. When disaster happens, they represent the DPC and constitute the CLPC"*. Responding to a crisis is a challenging task and requires concerted efforts from all personnel within the organization. At local level, the CLPC is activated by the mayor or the CASEC, which are elected politicians. Based on the committee's poor performance during Mathew, The CASEC was not knowledgeable or experienced about his task. Participant A3 thought it's because *"elected officials are not familiar with their roles and those who are willing to develop their community, lack of education and budget."* To complete their role, elected officials should be more competent. By "competent" and "capable," the author means people with acceptable technical training compatible with their tasks or their attribution. Further, collaboration disputes also emerged between the Mayor and the CASEC. The CASEC reported that the Mayor kept aid donations in his house for his relatives and affiliated politicians instead of giving it to local organizations. From the upper level, inter-organizational collaboration could not inspire trust.

Table 3. Overview of organizations involved in the response

Governmental		NGOs/ NPOs	
	FOCUS		FOCUS
MARNDR	Agriculture	MFS	Primary Health Care
TPTC	Planning, Execution, Supervision And Evaluation Of All Physical Infrastructure	CARITAS	Shelter, Food,
MENFP	Education	ACTED	Shelter Repair, Rescue, Recovery
DINEPA AFFAIRES SOCIALES	Drinking Water/Sanitation Protection For Family, Woman, Child, Old People And Handicaped	OIM UNICEF	Shelter, Reconstruction Shelter, Food, Wash, Education, Malnutrition
MPCE		ONU- ENVIRONNEMENTALE	Evacuation
CONATEL	Communication	REACH	Support The Wash Cluster Through Information Management And Analysis
OFATMA	Health Insurance	RED CROSS	Healthcare, Safe Shelter Solution, Lifesaving Relief Supplies
PNH	Police	SAMARITAN PURSE	Shelter Construction And Management
APN	Custom/Port	OXFAM	Clean Water, Hygiene Kits, Water Purification Tablets And Construction Material
SEMANAH	Safety, Security Of Maritime Transport And Marine Environment	OCHA	Food Security, Early Recovery, Health, Communication, Chlera, Shelter Coordination

Source from the author

4. Conclusion

This study explored the effectiveness of inter-organizational response through qualitative research during Hurricane Matthew in 2016 in Haiti. Research findings indicated that the destruction of information infrastructure hampered information efficiency among organizations. The DPC's lack of budget and access to communication technology tools limited its ability to fulfill roles such as maintaining communication and comprehensively coordinating during the disaster. Effective communication during the disaster relied heavily on non-governmental organizations since they had satellite phones, helicopters, and boats. Inter-

organizational collaboration ran into a lack of leadership, trust, and exclusion of local organizations.

5. Recommendations

1 Information systems and inter-organizational collaboration should be improved to prevent losses from future disasters. The author recommends the use of a systematic approach to communicate and plan effectively. Instead of using a one-way information campaign, a dialogue-based approach should be prioritized. The system should allow local leaders and branches of government to share so they can form a unified and effective response to an emergency. They need to develop a communication strategy that supports operability and interoperability. The Directorate for Civil protection and disaster response team should get access to communication equipment so that information can be assessed within the shortest time. Therefore, the use of smart technologies should be prioritized by the government since big data analysis could lead to greater operational efficiencies and cost reduction.

2 Even if organizations may unite to solve a problem, they often do not work well together. The author recommends a new collaborative culture by understanding each partner's culture. The DPC needs to hold more autonomy and authority as a coordinator agency. The use of platforms will allow leaders to develop their vision of future collaboration according to their priorities. Local organizations should be involved in response strategies and types of services provided by international donors. It's essential to clarify the benefits of each partner so that everyone can benefit from the collaboration. The heart of the partnership is to be found in the maintenance of trust. Better collaboration occurs between individuals who already know, respect, and trust each other. Communication and interaction can be considered as a strategy for the trust-building process. The CASEC should receive more training about its fundamental role in the disaster risk management committee. Finally, NGO should support more Haitian-led efforts.

References

- [1] Binder, Andrea. "Is the Humanitarian Failure in Haiti a System Failure?. A Comment on Jean-Marc Biquet's critique 'Haiti: Between Emergency and Reconstruction. An Inadequate Response'." *International Development Policy| Revue internationale de politique de développement* 4.3 (2013).
- [2] Comfort, L. K. (2007). Crisis management in hindsight: Cognition, communication, coordination, and control. *Public Administration Review*, 67, 189-197.
- [3] Dynes, R. R. (1970). Organizational involvement and changes in community structure in disaster. *American Behavioral Scientist*, 13(3), 430-439.
- [4] Eikenberry, A. M., Arroyave, V., & Cooper, T. (2007). Administrative failure and the international NGO response to Hurricane Katrina. *Public Administration Review*, 67, 160-170.
- [5] Fu, J. S., Cooper, K. R., & Shumate, M. (2021). Do US faith-based social service organizations resist collaboration? Examining the role of religiosity and operational capacity in inter-organizational partnerships. *Nonprofit and Voluntary Sector Quarterly*, 50(2), 241-261.
- [6] Government of the Republic of Haiti. "Action plan for national recovery and development of Haiti: Immediate key initiatives for the future." Port-au-Prince, Haiti Author (2010).
- [7] Office for the Coordination of Humanitarian Affairs (OCHA). Haiti: Hurricane Matthew situation report no. 21. 2016 [Cited on November 11]. Available from: <http://reliefweb.int/report/haiti/haiti-hurricane-matthew-situation-report-no-21-11-november-2016> [Google Scholar].

- [8] Kapucu, N., Augustin, M. E., & Garayev, V. (2009). Interstate partnerships in emergency management: Emergency management assistance compact in response to catastrophic disasters. *Public Administration Review*, 69(2), 297-313.