

**Research article**

# Disaster Mitigation Innovation: Lessons Learned at a Regional Disaster Management Agency in South Sulawesi

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**Abstract.**

Natural disasters are becoming more common in Indonesia, and their severity is increasing. To meet the challenges of updating disaster mitigation and rehabilitation capabilities, more innovative or better technology is required. In an effort to mitigate and overcome disasters, an innovation known as Simpul Pena has been developed. Simpul Pena is an information system for the control and operational center for disaster management in the regional disaster management agency (BPBD) in Wajo Regency. This study applied a qualitative descriptive approach. Data were collected through interviews, observations and document review. Interviews were conducted with the Head of BPBD Wajo Regency and the Head of the Emergency and Logistics Division, while observations were carried out to gain an understanding of the process of implementing public service innovations at the BPBD Wajo Regency. The results of the study showed that the implementation of the Simpul Pena innovation was effective and there has been consistency in its application. The impact of Simpul Pena was measured using five factors that can contribute to the success of innovation: leadership, management/organization, risk management, human resources, and technology. Disaster information system services were carried out through Simpul Pena via access to WhatsApp, Facebook and Instagram, resulting in integrated, coordinated, efficient and effective disaster management, as well as a significant increase in community participation in disaster management. The role of leadership was the most influential factor in shaping an innovative culture and behavior so that the organization continued to improve in developing service innovations to meet the challenges faced.

**Keywords:** public sector innovation, disaster mitigation, regional disaster management agency, Wajo Regency, South Sulawesi Province

## 1. INTRODUCTION

Disaster mitigation is carried out to anticipate disaster events in order to reduce the risk of disasters, both of loss of life and loss of property. Efforts that can be made before a disaster occurs in the form of physical development as well as awareness and improvement of the community's ability to deal with disaster threats.

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Natural disasters are becoming more common in Indonesia, and their severity is increasing. To meet the challenges of updating disaster mitigation and rehabilitation capabilities, more innovative or better technology is required. Rogers EM<sup>[1]</sup> stated that “An Innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption. It matters little, so far as human behavior is concerned, whether or not an idea is “objectively” new as measured by the lapse of time since its first use or discovery.

In an effort to mitigate and overcome disasters, an innovation known as “Simpul Pena” is an information system for the control and operational center for disaster management in Regional Disaster Management Agency (BPBD) Wajo Regency. “Simpul Pena” receives data and information, makes decisions, and distributes information so that it becomes the center of disaster management activities in Wajo Regency, which is located in South Sulawesi Province in Indonesia. The use of electronic systems as a tool in carrying out services is a solution to the need for fast, accurate, and transparent services, thus facilitating disaster prevention and management. The “Simpul Pena” is the key in the working mechanism of the Wajo Regency BPBD in tackling disasters by facilitating communication, coordination, and collaboration.

In 2018, Alamsyah HM as the innovator of “Simpul Pena” received an award from the Regional Secretary as one of the best innovations in Wajo Regency for being the first region in Indonesia that had an information system for the control and operational center for disaster management<sup>[2]</sup>. Therefore, this paper aims to determine the factors that support the success of the “Simpul Pena” innovation.

## 2. METHOD

This study applied a qualitative descriptive approach. Data were collected on July 2020 through Interviews, observation, and document review. Interviews were conducted with the head of BPBD Wajo Regency and the Head of the Emergency and Logistics Division, while observations were made to gain an understanding of the process of implementing public service innovations at the BPBD Wajo Regency. Document review carried out on the 2019 Wajo Regency BPBD Government Agency Accountability Performance Report.

## 3. RESULTS AND DISCUSSION

Dwiyanto A stated that, there are several types of innovation in public services, namely invention, development, duplication, and synthesis. Invention is the creation of a new

product or something that has never been done before. Development is applying an existing concept to a different context. Duplication is imitating an existing one by adding a creative touch to improve the concept so that it is superior. While synthesis is a combination of concepts with existing factors into a new formulation.<sup>[3]</sup> In this case, "Simpul Pena" innovation is an invention because it was really the first nationally at that time.

The innovation "simpul pena" operates every day for twenty-four hours by assigning operators who are on standby with a picket system. Public can find out information easily such as weather forecasts, climate, earthquakes, floods, and other natural disasters at any time. For this reason, the "Simpul Pena" operator observes weather information at any time and conducts teleconferences with the Jakarta BNPB. After the information is summarized, "Simpul Pena" distributes the information through social media, namely Facebook, website, and whatsapp. "Simpul Pena" provides this information at 08.00 am in the morning, 02.00 pm in the afternoon, and 08.00 pm at night.

Thus, Baumgartner J,<sup>[4]</sup> Knott AM,<sup>[5]</sup> Sullivan DO and Dooley L,<sup>[6]</sup> and Utomo TWW's<sup>[7]</sup> view proves that innovation can be interpreted as simplification and/or integration of business processes, where there is a reduction in time and cost components. Likewise, the views of Lewis M and Hartley J proved that innovation is a tool for achieving the purpose, to create an innovation in an organization must be a synergistic relationship between leadership, management, human resources, and technology.<sup>[8]</sup> The success of these innovations can be explained by examining the success factors of innovation proposed by Cook G, Matthew M, and Irwin S, who state that Innovation success factors are leadership, management, risk management, human resources, and technology.<sup>[9]</sup>

The leadership factor in "Simpul Pena" is very thick, employee commitment appears based on the direction of the innovator. This is the key of "Simpul Pena" innovation success in disaster mitigation. A key role in the practice of innovation leadership is the innovation leader. The Chief Executive initiated "Simpul Pena" and was approved by the Head of BPBD and employees to support the innovation.

On the management factor, based on Wajo Regency Regulation Number 6 of 2016 concerning the Formation and Organizational Structure of Regional Apparatuses, the BPBD organizational structure consists of the positions: Head of Agency, Head of Executive, Secretariat, Division of Prevention and Preparedness, Division of Emergency and Logistics, and Division of Rehabilitation and Reconstruction. Within the structure of these fields, there are sub-fields. "Simpul Pena" is supervised operationally by the Chief Executive and the Head of the Emergency and Logistics Division. The working

group that handles “Simpul Pena” works based on the guidelines for the information system for the control and operational center for disaster management.

In implementing “Simpul Pena” innovation, BPBD performs planning, organizing, actuating, and controlling. Starting from preparing a working group of employees who will operate “Simpul Pena” innovation with job descriptions, placing the working group in the same room and working based on a picket system, collaborating with the Meteorology, Climatology, and Geophysics Agency and forming a “disaster resilient” community in the village. and sub-district for ease of distribution of disaster information. Furthermore, the working group carries out its tasks in an integrated manner through the “Simpul Pena” information system to distribute disaster information through social media such as Facebook, website, and WhatsApp. Moreover, the Chief Executive will control the implementation of the “Simpul Pena”.

On the risk management factor, in the distribution of disaster information, it turns out that there are internal obstacles, namely minimal budgetary, damaged infrastructure (video tron), and computer equipment that is not updated. In addition, there are external obstacles, namely not all communities have tools that can access distributed disaster information and there are groups of elderly citizens who have limited knowledge in accessing disaster information. This has led to the formation of a “disaster resilient” community to facilitate access to disaster information. The implementation of “Simpul Pena” is always evaluated to find solutions so that obstacles to disaster information can be overcome. The budget for the operational activities of “Simpul Pena” is 70,000,000 IDR.

In terms of human resources, the Wajo Regency BPBD has 29 civil servants, consisting of 12 structural officials, 7 functional officials, and 5 executives. From the 7 functional officials there is 1 Disaster Analyst and 2 Disaster Administrators. Because in line with the breadth of duties and the scope of the service area, it needs to be strengthened by 53 contract employees, consisting of: 3 computer operators, 33 administrative staff, 3 drivers, 2 cleaning service, and 12 quick reaction team members. The number of human resources is not optimal in handling disasters, including the management of “Simpul Pena” application. This shows that there is a need to increase the quantity and quality of human resources in the field of disaster management. Therefore, the Wajo Regency BPBD provides special training for employees who are the member of “Simpul Pena” working group in order to be able to manage the application properly. In 2019, the budget available for improving the capacity of the apparatus is very low, which is only 5,610,000 IDR.

The Technology factor is an aspect that can reduce the need for the number of human resources, however, due to budget constraints, updates to advanced technology have not been carried out. The technology used are mobile apps, web based applications, social media support, communication tools and radio. In 2019, for infrastructure facilities, there is only a budget for periodic routine maintenance of operational vehicles of 50,000,000 IDR.

Despite of in 2018 “Simpul Pena” had received an award, but in 2020 when Alamsyah HM as the Chief Executive of BPBD was replaced, it turned out that the innovation was no longer well maintained so it was no longer optimal. This happened because the innovation of the “Simpul Pena” was very dependant to the innovator, Alamsyah HM.

Every innovation created will not be separated from barriers to innovation according to Mulgan G and Albury D, where there is an inhibiting factor relevant to Mulgan G and Albury D’s view is over-reliance on high performers as source of innovation.<sup>[10]</sup> In addition, short term budget and planning horizons. According to Dwiyanto A, reforming the bureaucracy is much more difficult and requires much more manpower and stronger endurance. Therefore, if the Wajo Regency Government wish “Simpul Pena” to run optimally, the Wajo Regency Government needs to find a solution to this problem.

## 4. CONCLUSIONS

The implementation of the Simpul Pena innovation has been going well and there has been consistency in its application. This Simpul Pena Innovation was measured by five factors that contribute to the success of innovation: leadership, management/organization, risk management, human resources, and technology. The Simpul Pena innovation is capable of realizing disaster information system services via access to Android, WhatsApp, Facebook, and Instagram, resulting in integrated, coordinated, efficient, and effective disaster management, as well as a significant increase in community participation in disaster management. The role of leadership is the most influential factor in shaping an innovative culture and behavior so that the organization continues to improve in developing service innovations to meet the challenges faced.

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