

# ANALYSIS OF THE BPBD WEBSITE OF SOUTH SUMATRA PROVINCE USING THE PIECES METHOD

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## Abstract

*The rapid development of information technology has made it easier for people to access various information through the internet. Websites are one of the most effective media in disseminating information to the public. The Regional Disaster Management Agency (BPBD) of South Sumatra Province already has a website that provides various information related to disasters, organizational structure, public services, and publication of activities. However, since the beginning of its creation, the website has not been visited many times and has never been analyzed on its performance. This study aims to analyze the performance of the BPBD website of South Sumatra Province using the PIECES (Performance, Information, Economics, Control, Efficiency, and Service) method. The results of the analysis show that from the Performance aspect, the website obtained a grade C score on Google PageSpeed Insight and a grade D on Pingdom; the Information aspect shows a scale value of 3 (good); the Economics aspect is considered efficient due to low maintenance costs; the Control aspect obtained a grade C on the Sucuri Sitecheck and a grade D on the Observatory; the Efficiency aspect shows quite good results; while the Service aspect is considered quite good but still needs improvement in the presentation of information to the public. Overall, the South Sumatra Province BPBD website functions quite well but still needs optimization in its performance and service quality so that it can become a more effective disaster information medium.*

**Keywords:** Website, BPBD South Sumatra, PIECES Analysis, System Performance, Information Technology

## 1. Introduction

In today's advancements, technological developments have developed very rapidly. Technology is currently one of the important needs for society. With rapid technological advancements, it can make it easier and faster for people to know or find information. Information today is the most important thing, coupled with the internet, now information is no longer limited because with the internet information is very quickly obtained. Technology users are now one of the most effective and efficient ways to convey or show information to the entire community.

The website here is one of the most frequently used internet with data and information that can be accessed by all people through the existing internet. By using existing software facilities such as chrome, mozilla firefox, browser users can explore various existing information. The Regional Disaster Management Agency of South Sumatra Province is one of the BPBDs that already has information technology in the form of a website. According to Yuhefizar (in Safitri and Prayitno, 2015:2) a website is a collection of all web pages whose function is to display various information in the form of writing, images and sounds from a domain formed in a series of interrelated things. A web page that is already linked to another web page is usually called a hyperlink, while text that is connected by another text is called hypertext. A website is a collection of various information media pages in a domain that can be accessed by anyone using the internet network (Prasetyo, 2015:21).

Where this website provides information about the South Sumatra BPBD. The website has a Home link (containing the main page), profile (containing the history of BPBD, vision and mission, duties and functions, organizational structure), services (containing LPSE, report, dibi BNPB, BNPB TV), work unit (containing the chief executive, secretariat, prevention and preparedness field, disaster management facilities and logistics, rehabilitation and reconstruction field), news (containing disasters and activities), publications (containing disaster preparedness, infographics, books, disaster info), disaster knowledge (contains disaster def. systems, disaster management systems, potential disaster threats), regulations (contains BPBD strategic plan, laws, presidential regulations, regulations of the head of BNPB, government regulations, governors and regional regulations, GIS BPBD), Login (for admins). However, since the first website was created, the website of the Regional Disaster Management Agency of South Sumatra Province has not been crowded with people and the website has never been carried out an analysis of the situation

website. By analyzing the website, useful information can be obtained for website owners to improve and develop their websites for the better and to find out the weaknesses and strengths of the South Sumatra Provincial Regional Disaster Management Agency website. According to Sintawati, I. D., & Hartati, T. (2020), to identify problems, an analysis of performance, information, economy, control, efficiency, and service must be carried out. This guide is known as PIECES (Performance, Information, Economic, Control, Efficiency, Service) analysis.

## 2. Method

This study uses a qualitative descriptive approach with the aim of analyzing and evaluating the performance of the South Sumatra Province Regional Disaster Management Agency (BPBD) website based on six main aspects of the PIECES method (Performance, Information, Economic, Control, Efficiency, and Service). This approach was chosen because it is able to describe the actual condition of the website system in depth, without making changes or interventions to the existing system.

The object of the research is the official website of the South Sumatra Provincial BPBD, which can be accessed through [the http://bpbd.sumselprov.go.id](http://bpbd.sumselprov.go.id) address. This site is a means of delivering disaster information to the public and contains various menus such as Profiles, Services, Work Units, News, Publications, Disaster Knowledge, and Regulations. This website plays an important role in providing data and information related to disaster management in the South Sumatra Province area.

This research is located within the Regional Disaster Management Agency of South Sumatra Province, both through direct observation of the website and secondary data collection from the institution's documentation. The data collection technique is carried out through several stages, namely: Direct observation of the appearance and functionality of the website to assess the ease of access, speed, and completeness of the features provided. Documentation, which is data collection in the form of screenshots of the main page, profiles, news, and other menus contained in the website. Technical testing uses several online analysis tools such as Google PageSpeed Insight and Pingdom to assess Performance aspects, Sucuri Sitecheck and Mozilla Observatory to assess Control or Security aspects, as well as manual evaluation of Information, Economics, Efficiency, and Service aspects. Interviews or communication with the website management are carried out if necessary to obtain additional information related to the content management system, maintenance, and technical obstacles faced. The data analysis method is carried out by grouping the results of observation and testing based on six dimensions of analysis in the PIECES method, namely: Performance: assessing the speed of access, loading time, and responsiveness of the website, Information: evaluating the completeness, accuracy, and relevance of the information presented, Economic: reviewing the cost efficiency aspects of website management and maintenance., Control: assessing the security aspects of the website against potential threats and vulnerabilities system, Efficiency: analyzes the level of ease of use of the system and the suitability of input-outputs, Service: evaluates the extent to which the website is able to provide fast, precise, and useful information services to the community.

The results of the analysis from each dimension are then presented in the form of tables and descriptive descriptions, and are equipped with research flow diagrams to describe the stages of activities systematically, starting from data collection, testing, to the preparation of analysis results.

To maintain the validity of the data, triangulation of sources and methods is carried out, namely by comparing test results from several analysis tools, confirming the data with the results of manual observations, and matching information from the website manager. With this approach, it is hoped that the results of the research will be able to provide an objective and comprehensive picture of the actual condition of the South Sumatra Province BPBD website and provide relevant improvement recommendations.

## 3. Result and Discussion

The researcher has conducted learning and observations on the website of the Regional Disaster Management Agency of South Sumatra Province. This learning is carried out by observing the web directly and conducting interviews. Observation is carried out by observing all home pages, data and information on the website and interviews are conducted by asking directly the website admin. Performance analysis is the ability to complete business tasks quickly so that goals can be achieved immediately. Performance is measured by the amount of production (throughput) and response time of a system. As a support for the analysis, the researcher measured the loading speed of the South Sumatra Provincial Regional Disaster Management Agency website using Google PageSpeed Insight and Pingdom. The results before the Website loading time measurement <http://bpbd.sumselprov.go.id/> shown in the following figure.



Figure 2. Website Loading Speed

Source : <http://bpd.sumselprov.go.id/>

The results after the loading time measurement of the Website <http://bpd.sumselprov.go.id/> using Google PageSpeed Insight, the loading speed measurement was obtained with a value of 19% given to the <http://bpd.sumselprov.go.id/> Website. The speed in accessing the Website is 5.1S with a total page size: 7.15MB. Based on the measurement results, it can be concluded that the Website in loading time speed is not included in the good category, namely by obtaining grade C. The results of the screen image can be seen in the following image.

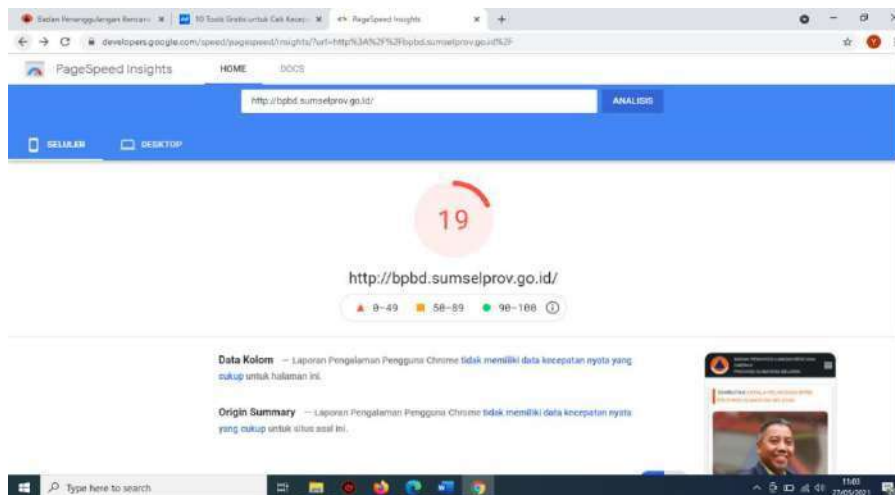


Figure 3. Website Loading Speed (Pingdom)

Source : [tools.pingdom.com](https://tools.pingdom.com)

Results after measuring the loading time of the <http://bpd.sumselprov.go.id/> Website using Pingdom From the results of the analysis of the loading speed measurement, a result with a grade of D was obtained given to the <http://bpd.sumselprov.go.id/> Website. The speed of access to the Website is 5.39S with a total page size: 8.3MBMB. The result of the screen image can be seen in the following image.

### 3.1 Information

In information, there are 3 indicators that affect each other, including accuracy, relevance, and timely. The measurement of this information was obtained by the researcher through the analysis of data and information from interviews. The interview was conducted with the user admin of the website.

### 3.2 Accurate

The South Sumatra Provincial BPBD website has provided information about the South Sumatra Provincial BPBD. Starting from the information provided as a means of information in the form of news of activities. This is one of the services provided by the South Sumatra Provincial BPBD as one of the means of information without having to ask questions directly. From the results of the interview, the variable questions for the accuracy of the information displayed clearly and completely obtained an average score of 3, namely Good, because the information

which is given complete. Below is a screenshot of the accuracy of the information contained on the South Sumatra Provincial Disaster Management Agency Website.

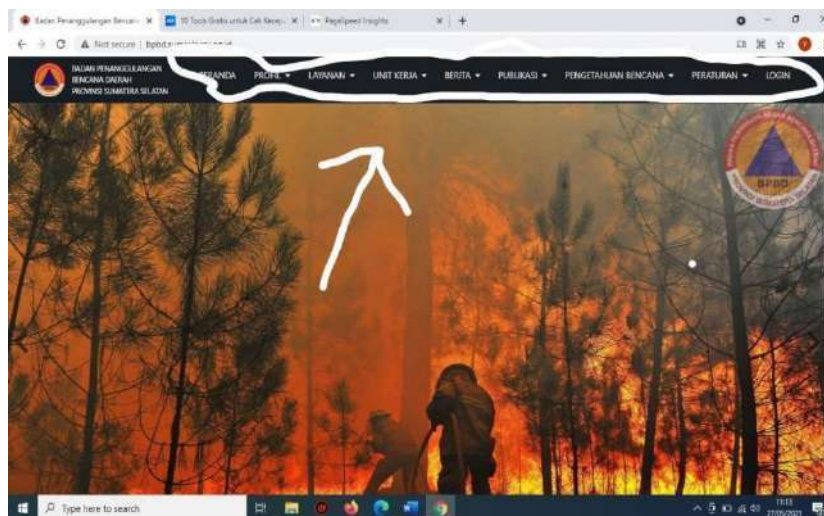


Figure 4. Accuracy of Website Information Source :

<http://bpbdsumselprov.go.id/>

### 3.3 Relevant

With the existence of the South Sumatra Provincial Disaster Management Agency website, it will greatly help the wider community in obtaining information, which they really need about the South Sumatra Regional Disaster Management Agency. From the results of the interview, the variable relevance to the office field got an average score of 3, which is Quite Good, because the information content on the Website they can already see the data on their respective laptops without opening the Website itself. One of them is as shown in the following picture:

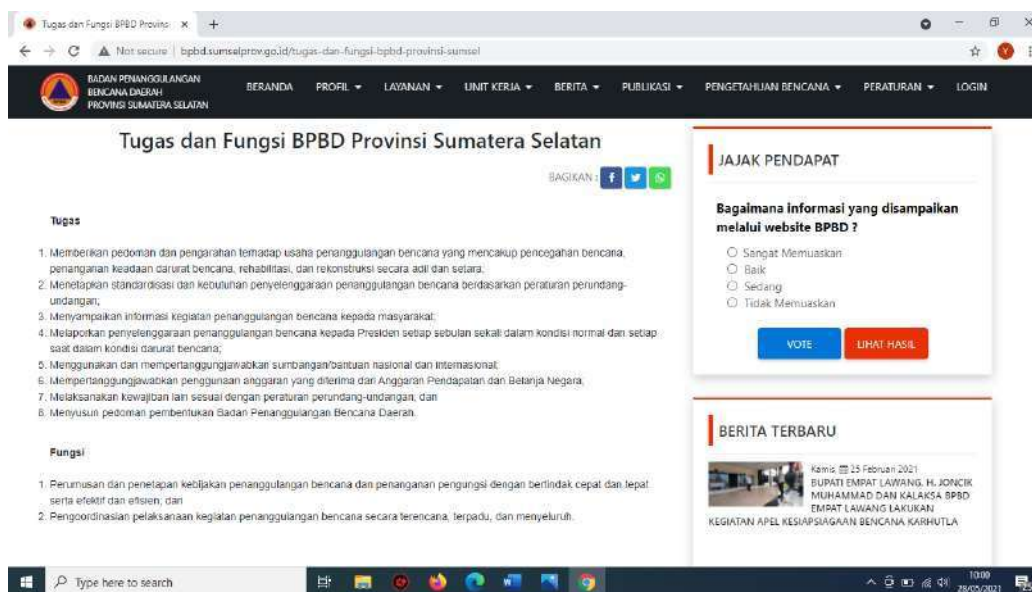


Figure 5. Website Relevance

Source : <http://bpbdsumselprov.go.id/>

### 3.4 On time

With the existence of the South Sumatra Provincial Regional Disaster Management Agency website, important information that is to be conveyed to the community is not timely compared to through print/brochure media. So that this information is less useful and useful for those who really need the latest information on the South Sumatra Provincial BPBD. From the results of the interview, the timeliness of the information provided received an average score of 2, namely Poor, due to the existing information

not in accordance with the latest. The information displayed is actual (updated) and reliable gets an average score of 2 on a scale of Poor, because the information provided is not updated periodically. One of them can be seen from the following image.

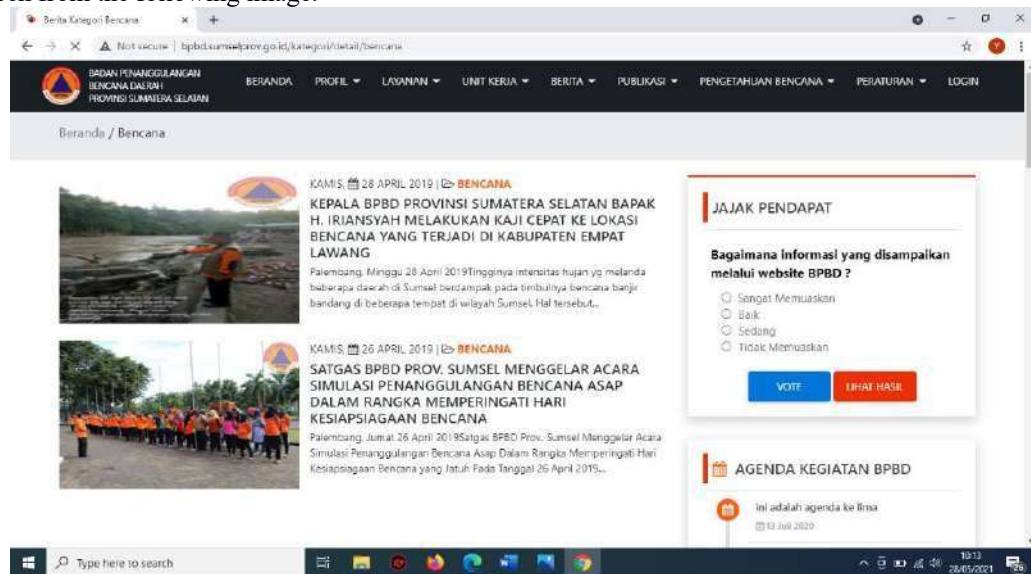


Figure 6. Timeliness of Website Information

Source : <http://bpbd.sumselprov.go.id/>

### 3.5 Economics

At this stage, the researcher will analyze from an economic perspective, namely the cost. Whether using the Website can reduce the cost of conveying information to the public. The cost here is not only financially but also non-financial. Financially, costs that can be saved, including public transportation costs, do not need to come directly to find out information about the South Sumatra Provincial BPBD. The results of the analysis conducted by the author on the South Sumatra Province BPBD Website based on economics are as follows:

#### 3.5.1 Cost

In terms of cost, the South Sumatra Provincial BPBD itself only needs web hosting and maintenance which is currently not too expensive.

#### 3.5.2 Benefit

Information technology that is developing rapidly today, the existence of the South Sumatra Provincial BPBD website can make it easier for people to access news about South Sumatra Provincial BPBD. With the existence of the South Sumatra Provincial Regional Disaster Management Agency website, the availability of information, data and information between the South Sumatra Provincial BPBD and the community in general is relatively fast.

### 3.6 Control

At the control stage, the researcher will analyze in terms of the security of the Website. Security analysis is an improvement to controls to detect and correct errors and deficiencies that can occur. Control in the system is very necessary to avoid and detect system errors and ensure data and information security. With security, all performance that experiences problems can be quickly fixed. At this stage, the researcher also measured the security of the website using the Sucuri Sitecheck and Observatory measuring tools. By using this measuring tool, it can be found out whether the South Sumatra Provincial Regional Disaster Management Agency website is safe for the public to visit.

In addition to scanning for malware, Sucuri Sitecheck also ensures that the server running your site doesn't crash or get spammed. In addition, this tool will notify you if your website has been blacklisted or blacklisted by security services such as Opera, Yandex, PhishTank, ESET, Sucuri Labs, McAfee, Norton Safe Web and Google Safe Browsing. The results after the security measurement of the <http://bpbd.sumselprov.go.id/> website using Sucuri Sitecheck get a C result, which is safe enough for the public to visit and does not experience errors. The resulting image of the Screen can be seen in the following image.

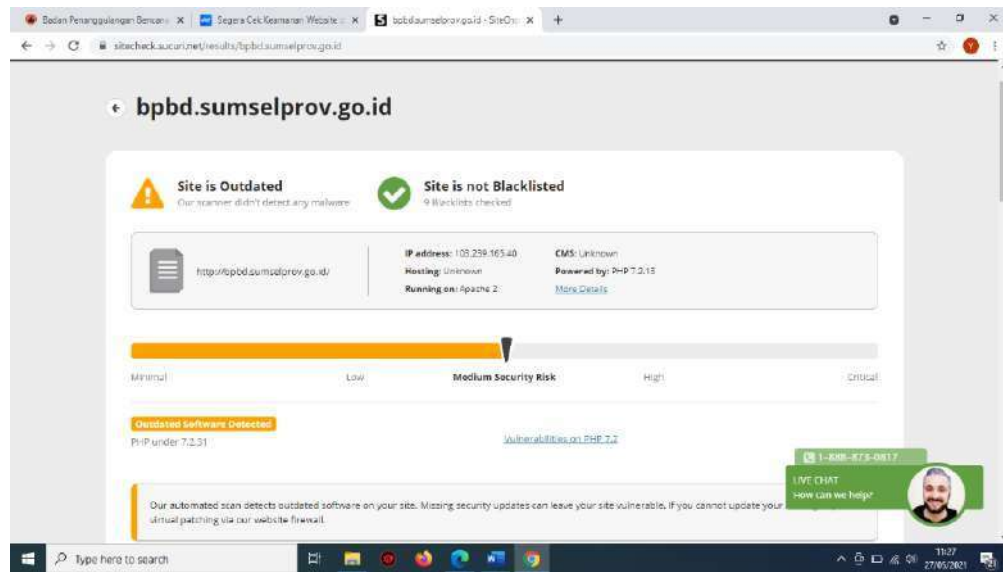


Figure 7. Website Security

Source : sitechecksucuri.net

### 3.7 Observatory

is a free site security checker tool maintained by Mozilla. Although it cannot be used to scan for malware, the checks it performs are quite complete, including Content security policy, HTTP strict transport security, Redirection, X-Frame options. The results after the security measurement of the Website <http://bpbdsumselprov.go.id/> using Observatory got a result of D, which is bad because the Content security policy is insufficient. The result of the screen image can be seen in the following image.

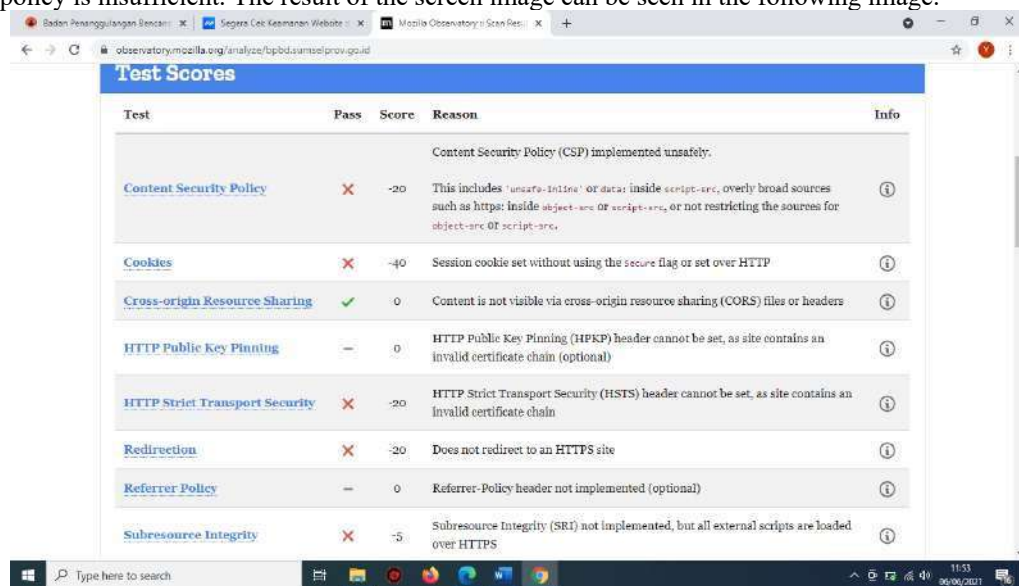


Figure 8. Website Security (Observatory) Source : observatory.mozilla.org

### 3.8 Efficiency

At the efficiency stage, the researcher will analyze how efficient the South Sumatra Provincial Disaster Management Agency website is in conveying information to the public. Based on the analysis of the questionnaire on the information submitted through the BPBD website, the information questions displayed were useful for visitors to get the following average scores:



Figure 9. The Usefulness of Information for Visitors

Source : <http://bpbdsumselprov.go.id/>

The website of the Regional Disaster Management Agency of South Sumatra Province has had quite good efficiency, because the existing system has been used well and can also produce the expected output. The existence of the website can increase the quantity of information conveyed, and the time for short and clear delivery. However, this Website has not been able to provide excellent efficiency, because the information provided is incomplete plus the lack of data updates and the latest information, besides that the profile menu in the organizational structure section cannot be viewed or opened. This can be proven on the following screen.

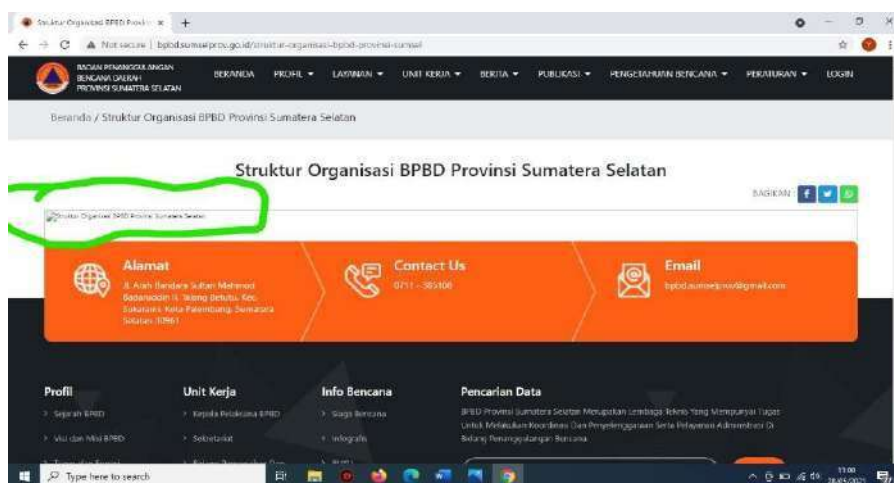


Figure 10. Website Efficiency

Source : <http://bpbdsumselprov.go.id/>

### 3.9 Service

At this stage, the researcher will analyze what services are provided by the South Sumatra Provincial Regional Disaster Management Agency Website. The system that is currently being run by the South Sumatra Provincial BPBD aims to improve service performance in the delivery of information to the public without knowing space and time, and information can be received to the maximum. The South Sumatra Provincial Disaster Management Agency website has been an effective medium for the public in providing information services, because to get information they do not have to come directly to the South Sumatra Provincial BPBD. So that with the limited number of employees owned, it will not make interested people wait. In creating the website of the Regional Disaster Management Agency of South Sumatra Province, it does not incur high costs in delivering information. This will certainly be very different if it is still

using print and electronic media as a medium for conveying information from the South Sumatra Provincial BPBD to the general public.

From the results of the analysis, the conclusion was obtained, namely from the structure of the menu that was built, it can be seen that the initial purpose was to provide information services to the community, one of which was the news menu, services and work units. However, this information service is still not optimal because the content of information services has not been filled properly due to lack of maintenance/updates, for example can be seen on the screen of disaster information images that have not been updated for 2021 as follows:



Figure 11. Copyright © 201  
Source : <http://bpbdsumselprov.go.id/>

#### 4. Conclusion

Based on the results of research that has been carried out on the website of the Regional Disaster Management Agency (BPBD) of South Sumatra Province using the PIECES (Performance, Information, Economic, Control, Efficiency, Service) method, it can be concluded that in general the South Sumatra BPBD website has functioned well as a public information medium, but still needs some improvements in certain aspects. In terms of performance, the website shows a slow response time with 19% test results and an access speed of 5.1 seconds at a page size of 7.15 MB, which indicates the need to optimize the speed and file size of the site. In the Information aspect, the information presented is classified as accurate and relevant to the institution's duties, but there are still shortcomings in updating the content periodically. From an economic perspective, this website is considered quite efficient because the maintenance costs are relatively low and only require hosting services, although these conditions slightly affect the site's response speed. The Control aspect shows that the website is classified as safe for public access, although it still has weaknesses in the content security policy (Content Security Policy) that is not optimal. Furthermore, from the Efficiency aspect, the website system is functioning well and is able to produce outputs according to the purpose, but the efficiency is not optimal because there are still shortcomings in completeness and data updates. Finally, in the Service aspect, the South Sumatra BPBD website has become an effective information medium for the community and is able to provide relevant disaster information services, but the service content has not been filled optimally due to a lack of maintenance and regular updates. Overall, the South Sumatra Province BPBD website needs to be developed and maintained periodically in order to improve the performance, efficiency, and quality of information services to the community.

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