

APP SHEETS ON WETLANDS TO REALIZE SUSTAINABLE DEVELOPMENT GOALS (SDGS)

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Abstract

This research aims to explain the process of designing an App sheet by android media to collect the problems and potential that exist in wetlands in the Kalimantan area, as a form of implementing sustainable development goals (SDGs) regarding preventing or slowing down climate change: taking immediate action to combat climate change and its impacts specifically in goal 13; and preserving life on land: promoting sustainable development and sustainable management of natural resources, including reforestation and protecting terrestrial ecosystems, is included in goal 16 of the SDGs. The method used is Design-based Research, through the stages of analysis, design, development and evaluation. The results of the research are in the form of an App sheet with validation percentages in terms of suitability for needs, media, and readability ease of using the application of 96, 98, and 95%, respectively. The developed App sheet has validity in the very good category in terms of meeting needs, media and ease of use. Apart from that, a limited media trial was also carried out on 30 informants, where the results showed that the developed App Sheet could be used well, and could provide clear information about the problems and potential of wetlands in Kalimantan as an effort to realize the 13th desired development goal and 16. It is recommended that for further research the App sheet be used in research on exploring the problem conditions and potential of wetlands in Kalimantan and can be further developed to add templates or other information needed to explore the development of wetlands in Kalimantan or other area.

Keywords: Appsheet, Kalimantan, Media, SDGs, Wetlands.

1. Introduction

The lowlands generally have land in the form of swamps and peat (wetlands), apart from being a place of residence/settlement, they are also used as a source of livelihood in the form of farming, fishing, tourist attractions, plantations, mining, and others [1]. This makes South Kalimantan one of the provinces in Indonesia which is unique in terms of settlement patterns, transportation, livelihoods, culture and ecology [2-4]. South Kalimantan is a province that has many wetlands areas, especially swamps.

Swamp explains that swamp land is divided into (i) tidal swamps/coastal swamps and (ii) non-tidal swamps/inland swamps [5, 6]. Based on this opinion, it is not surprising that Southern Kalimantan is a place that requires special treatment. Therefore, it has a friendly and friendly environment for everyday life [7]. This is because swamp and peat areas are wetland habitats that are capable of absorbing (sequestering) and storing (sink) large amounts of carbon. Therefore, they can prevent the escape of greenhouse gases (especially CO₂) into the earth's atmosphere which can have an impact on climate change [8-10]. One of the conditions of wetlands in Banjarmasin is residential areas. Based on these circumstances, it is hoped that preserving the wetlands environment will have a positive impact in significantly inhibiting the rate of climate change.

One of the causes of environmental damage is human behaviour which always wants to carry out activities or wants to get innovations to meet the needs or challenges in life. Innovations that can be made to control environmental conditions can use applications in the form of sheets to collect information inputted by field technicians who observe [11, 12]. Appsheets have been widely developed by previous researchers such as in archive management, development business, and warehouse development [13-15].

Based on several problems and preliminary studies, this article aims to develop an AppSheet to collect information on problems and potential in wetlands as a form of implementing sustainable development. Although many studies reported the use of this app, the novelties are the process of creating an AppSheet about wetlands the expert validation results for AppSheet, and the results of trials using AppSheet in collecting information about wetlands.

2. Literature Review

2.1. App sheet

AppSheet analyses the structure of provided data sources and automatically generates the views within the application. However, active internet connection for their usage is required. In Fig. 1, an overview of typical application creation workflow using AppSheet is given [16]. Every citizen who lives in a wetland environment can use this application to make it easier to convey information provided they use an Android cell phone, have an internet network available (have an internet quota), install the AppSheet, fill in their identity completely, fill in complaints or the condition of the surrounding environment, and send. More clearly regarding the flow of using AppSheet as referred to in this explanation is shown in Fig. 1.

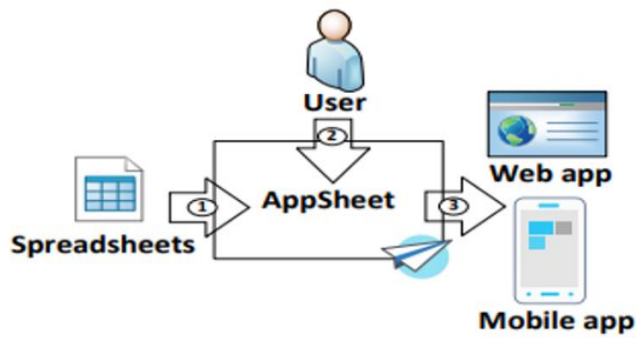


Fig.1. Overview of typical AppSheet workflow: 1. Import data source, 2. User customizations, and 3. Generated output.

2.2. Wetlands for SDGs

A wetland is defined as any land area that is saturated or flooded with water, either seasonally or permanently [17]. They can be either inland such as lakes, aquifers, and marshes or coastal, as mangroves, estuaries, and coral reefs. Wetlands are where water and land meet [18], with 7 benefits, including: wetlands ensure fresh water for all of us, wetlands filter harmful waste from water, wetlands store carbon, wetlands are nature’s shock absorbers, wetlands are critical for biodiversity, wetlands guarantee our food supply, and wetlands sustain livelihoods. (see Fig. 2). Wetlands provide essential services for nature and people [19]. They provide water for consumption, protect us from floods, store carbon, and other functions critical to achieve sustainable development. Yet, wetlands are under threat and are being lost faster than any other ecosystem mainly due to land use conversion, water diversion and infrastructure development [20]. This adds new information relating to SDGs, as reported elsewhere [21, 22].



Fig. 2. Important wetlands.

3. Method

The research carried out is included in Design-based research (DBR). The research uses four steps, namely: analysis, design, development, and evaluation. Analysis of the need for innovative delivery to collect information that can be used as an effort to achieve sustainable development goals already accustomed to the use of

technology. Then, the design stage was carried out in the form of an AppSheet for android about wetlands. This was carried out as a development stage and validation tests were carried out from media experts. In addition to the validation test, a limited trial was carried out on 25 people who used the App on their android.

4. Results and Discussion

The results obtained from AppSheet using the DBR process on wetlands include Analysis, Design, Development, and Evaluation. The analysis was carried out by looking at the need to observe information on the problems and potential of wetlands as an effort to implement the goals of sustainable living by using technology. The results of the analysis include: (i) to utilize existing wetlands, we must know the characteristics and potential of the land for sustainable development for better use of land in the future, (ii) each land is not only the potential that we need to know [23], but problems that often arise must be made into important information to know, this is done to provide appropriate solutions as a form of realizing sustainable living goals [24]. One development that can be done is to create an application that can collect a lot of information from anywhere and anyone and can be collected in one complete metadata at the same time but in different places. AppSheet is an alternative for collecting information on problems and potential in all parts of Kalimantan's wetlands, which is input by several informants at the same time. Therefore, it is flexible and easy to use by anyone.

The AppSheet design is then adjusted to suit citizen needs. The sketch or story board for the Appsheet. The display of information required in the application is shown in Fig. 3. Every citizen in the wetlands can use the AppSheet to enter personal data, the problems they are facing or experiencing, what they want, and the estimated time needed to provide advice to the government. Through the use of AppSheet technology, it can become a bridge connecting communication, needs, and solutions to utilize and manage wetlands sustainably [25]. People must have a high level of awareness to protect the environment as a form of environmental care as instructed by the Indonesian government.

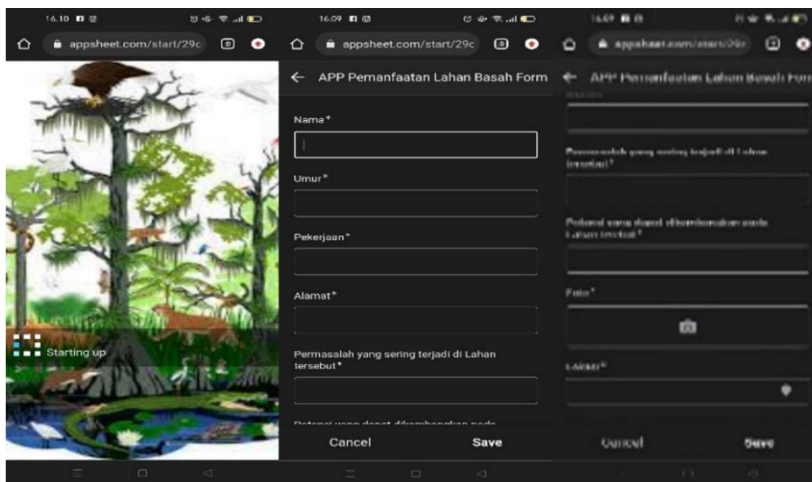


Fig. 3. Process use the AppSheet about wetlands.

At the development stage in making the AppSheet, in the application template that is created, apart from the problems and potential input, photos of the original wetland and its position are included. Land is also needed. Therefore, on the Appsheet a section for image and location input via GPS is added, as in Fig. 4, it is clear that through the AppSheet application, the whereabouts of citizens and the environmental conditions of the surrounding wetlands can be analysed by operators with the help of satellite maps. Therefore, policies based on urgent needs can be mapped and receive follow-up based on a priority scale [26]. Every citizen has the same opportunity to convey his concern for the environment, but not everyone has the opportunity to receive follow-up services at the same time. Priority scale service management remains the domain of policymakers by the circumstances, facts, and qualities of the report maker (citizen) [27]. The availability of facilities in the form of technological applications in the form of an AppSheet does not mean it is without filters but is used to help make things easier for every citizen to maintain, manage, and utilize the wetland environment wisely and judiciously.

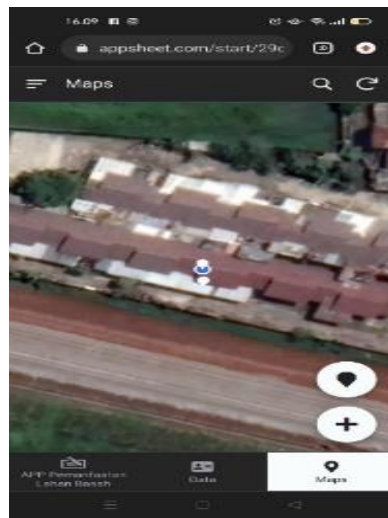


Fig. 4. Add template for foto and GPS in the AppSheet.

In the evaluation stage, the AppSheet about wetlands was validated by language and media experts, where the indicators used included suitability for information needs, media, and readability of the application [28]. Several validation tests were carried out on the product, namely in terms of needs, media, and user readability/ease of using the application. With validation percentages in terms of suitability for needs, media, and readability/ease of using the application of 96, 98, and 95% respectively. The developed Appsheet has validity in the very good category in terms of meeting needs, media and ease of use [29]. Apart from the Appsheet application, there is also hydrogen technology which can be used as an alternative for preserving the wetland environment [30]. Although hydrogen technology has been widely researched in several countries, it focuses more on saving environmentally friendly energy use. Hydrogen can be produced using thermochemical liquid decomposition, the gasification of coal, electrolysis of water, and steam reforming processes [31].

Currently, it is necessary to apply tools to collect information that is practical, effective, interesting and easy to use with more meaningful functions as an effort to implement the goals of sustainable living in wetlands. This can also be seen from the results of limited tests, where on average informants and application users find it easy to use the application and obtain accurate information. In this case, the selection of AppSheet technology is aimed at implementing sustainable living goals number 13 and 16 concerning climate change and economy and social affair [32, 33]. Providing clearer information will help application users understand the importance of conserving nature as an agent of sustainable development.

5. Conclusion

Wetlands provide important services to nature and humans. Forests provide water for consumption, protect us from floods, store carbon, and other functions that are important for achieving sustainable development. Research on wetlands is a theme that is being carried out by many researchers with the results obtained from Scopus data having a number that continues to increase every year. In this research, DBR was carried out by creating AppSheet technology media to provide information about the problems and potential of wetlands in Kalimantan, to identify solutions and environmental conservation efforts as a form of achieving SDGs, especially goals number 13 and 16 regarding climate and economic and social change matters with development validation results in the very valid category and very suitable for use by informants as a solution for implementing sustainable living. It is recommended for further research to test the effectiveness and use across generations with a wider scope.

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