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ONLINE COOPERATIVE APPLICATION FOR COFFEE FARMER GROUP IN PAGAR ALAM CITY

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Abstract
The city of Pagar Alam with the commodity of coffee plants with an area of 8,323 ha with a total production of 7,465.50 tons. The coffee plants produced by 90% of robusta types are the result of export commodities and have become a mainstay of the city's economy. Harapan Jaya farmer group located in Pagar Alam Utara sub-district, Pagar Alam City has a system of selling and marketing carried out individually through middlemen and not through coffee farmer groups. Marketing of coffee products to various cities through middlemen unwittingly has eliminated the distinctive characteristics and quality of Pagar Alam coffee because it has been processed and mixed with coffee from outside the city of Pagar Alam. The Participatory Action Research (PAR) model is used in this study as a research method approach, where researchers invite and involve coffee farmer groups as active participants in a concrete action where they themselves experience problems in order to change, improve, build and use a system built. The online cooperative application was built by collecting data related to the coffee sales system in Harapan Jaya coffee farmer group in the city of natural fences, then the researchers analyzed and designed the system based on existing data. Features in online cooperative applications can run well after implementation and testing. Deepening cooperative concepts that are more detailed such as adding business and other cooperative activities can be applied to online cooperative applications to further perfect this application.
Keywords: *Coffee, online cooperative, pagaralam coffee*

1.0 INTRODUCTION

Pagar Alam City is in a cool highland with temperatures ranging from 20-28 ◦C with rainfall of 1,462-5199 mm per year, the city of Pagar Alam has great potential in the agricultural and plantation sectors. Based on the potential that is owned, currently most of the people of Pagar Alam city have livelihoods as coffee farmers both individually and through farmer groups.

Based on Data from the Central Statistics Agency (BPS) in 2015, the area of coffee plantations in the City of Pagar Alam is only 8,321 hectares (ha) with an average production volume of 7,465.50 tons per year. The coffee plantation plant commodities totaled 8,323 ha with a total production of 7,465.50 tons. The coffee plants produced by the 90% Pagar Alam coffee farmers are robusta which are the result of export commodities and have become a mainstay of the city's economy[1].

The system of selling and marketing the results of coffee crop commodities to producers used by coffee farmers is currently carried out individually through middlemen and not through

coffee farmer groups. This condition is caused by the unavailability of containers that can help farmers to market and distribute the production of the coffee plants to producers directly. Marketing of coffee products to various cities through middlemen unwittingly has eliminated the distinctive characteristics and quality of Pagar Alam coffee because it has been processed and mixed with coffee from outside the city of Pagar Alam.

Based on the analysis of the problems that have been carried out on the running system, the researchers formulated several constraints faced as shown in table 1:

No	Sector Name	Indicator
1	Sales	1. The current coffee sales system is carried out individually through middlemen and not through farmer groups. 2. The quality of coffee plants and coffee yields that have not been maximized affects the volume of coffee sales.
2.	Marketing	1. The marketing and distribution system of the commodity harvested from coffee plants indirectly to the producers of coffee but through intermediaries of middlemen. 2. The marketing system through middlemen has eliminated the distinctive characteristics and quality of Pagar Alam coffee because it has been processed and mixed with coffee from outside the city of Pagar Alam.

2.0 RELATED WORK

Sadgotra & Saputra created an online marketplace for SMALL AND MEDIUM BUSINESS, this system provides information to consumers or potential buyers of products far from the location of UKM[2], what we do is develop a system by applying cooperative principles to the application we create.

Puspitasari designed a cooperative information system that is used for savings and loan activities by applying the basic principles of cooperatives[3], but the use of this system can only serve savings and loan activities, the system we developed has a different business process, which is used to serve coffee farmers with buyers coffee directly.

Firdaus & Widyasastrena supports Technopreneur-based Cooperative and UMKM Accounting Information Systems to assist Cooperatives and UMKM in providing financial reports and producing responsible financial reports[4]. Whereas we designed a system that provides business processes and provides SHU distribution to cooperative members and that is a basic principle of a cooperative system.

3.0 THEORETICAL

Application

According to Jogiyanto is the use in a computer, instructions (instructions) or statements (statements) are arranged in such a way that the computer can process input into output[5].

Cooperative

Cooperatives are associations consisting of individuals or legal entities, which give freedom to members to enter and exit, by cooperating in a family run business to enhance the physical well-being of its members[6].

Coffee

Coffee (Coffea spp) is a tree-shaped plant species and belongs to the family Rubiaceae and genus Coffea. Coffee is a beverage ingredient not only famous in Indonesia but also famous throughout the world. This is because ground coffee and steeping have a distinctive aroma that other beverage ingredients do not have[7].

Unified Modelling Language (UML)
According to Prastuti Sulistyorini, the Unified Modeling Language (UML) is a "language" that has become a standard in the industry for visualizing, designing and documenting software systems. UML offers a standard for designing a system model[8].

3.0 METHODOLOGY

In this study, the researcher used the Participatory Action Research (PAR) model as a research method approach, where researchers invited coffee farmer groups as active participants in building and using the system built.

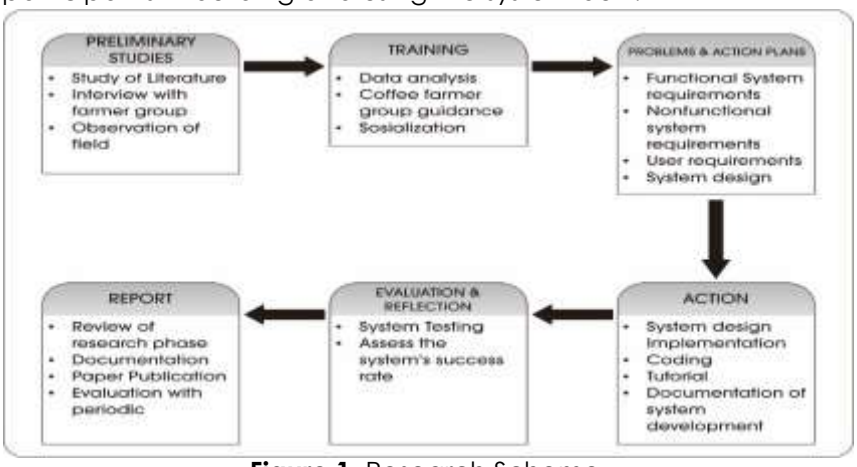


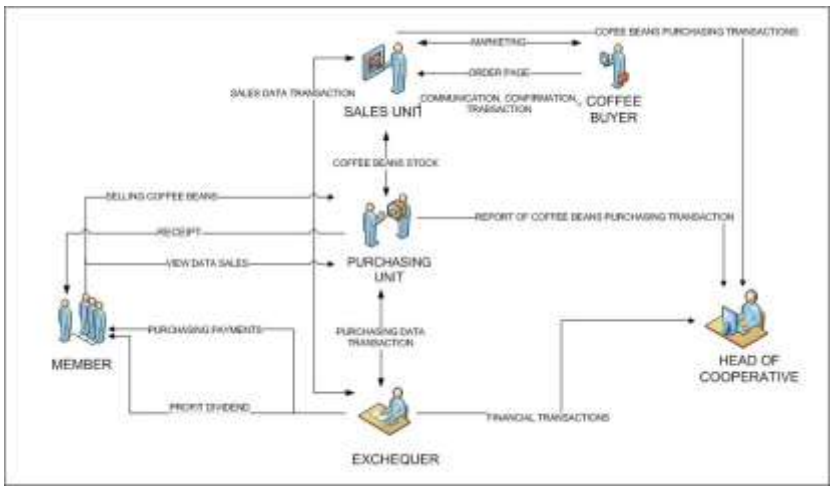
Figure 1. Research Scheme

The data collected in this study comes from two types of data, namely the primary data obtained from the Harapan Jaya Farmers Group, and secondary data obtained from books and research references that have been done before. The method used to collect data is by literature study, interviews and direct observation.

The Participatory Action Research (PAR) method is research that involves all relevant parties in actively examining together in a concrete action where they themselves experience problems in order to change and improve their condition[9]. PAR research methods are used to answer the formulation of the problem that has been stated in the previous chapter.

4.0 RESULANTS AND DISCUSSION

4.1 Proposed System Analysis



With the existence of weaknesses in the ongoing system, a new system is formed, with this expected to run optimally so that it can provide useful benefits for users of Online Cooperative Applications for Coffee Farmers in the City of Pagar Alam in particular, following an overview of Online Cooperative Application that will be built by researchers.

Figure 2. Online Cooperative Application proposed

4.2 Functional System Requirements

In this study, the functional requirements of the system are as follows: cooperative members, admin, Head of Cooperative, Treasurer and coffee producer as a coffee buyer.

1. Member of the Cooperative
   a. Cooperative members must be able to log in to online cooperative applications and things related to activities that can be carried out by cooperative members after logging in.
   b. Cooperative members can enter their respective username, login password and access rights into online cooperative applications.
   c. Cooperative members can see the total coffee sales revenue based on the sales date, the amount of coffee sold and the price per kg of coffee so that the application will accumulate the total price obtained by cooperative members from the total coffee sales.
   d. Cooperative members can find out the profit sharing called SHU (*Sisa Hasil Usaha*) based on the sales date, the amount of coffee sold and the price per kg of coffee so that the application will accumulate the total price obtained by cooperative members from the total coffee sales.

2. Administrator
   a. Admin can log in by inputting their username, login password and access rights to enter the online cooperative application.
   b. Admin can add, update, delete and view coffee data and coffee producer data.
   c. Admin can add (entry), update, delete and calculate the total annual SHU based on the SHU period, with provisions: SHU Year = Total Sales - (Total Purchases + Total Operating Costs)
   d. Admin can add (entry), update, delete and calculate total SHU Membership based on Total All Coffee Sales Revenue and Percentage of SHU Members and Total SHU Per Year, with provisions: Percentage of SHU Membership x Total SHU Per Year.

3. Head of Cooperative
   a. The Chair can view the coffee sales recapitulation report based on a certain period and the date of sale made by members of the cooperative and farmer groups.
   b. The Chair can view the coffee purchase recapitulation report based on a certain period and date of purchase made by the coffee producer.
   c. The Chair can view the SHU income recapitulation report based on a certain period and date of sale and total price.

4. Treasurer

The system must be able to provide access rights to the treasurer provided that:

   a. Treasurer can log in by inputting their username, login password and access rights to enter the online cooperative application.
   b. Treasurer can add (entry), update, delete and calculate the total annual SHU based on the SHU period, with the provisions: SHU Year = Total Sales - (Total Purchases + Total Operating Costs)
   c. Treasurer can add (entry), update, delete and calculate total SHU Membership based on Total All Coffee Sales Revenue and Percentage of SHU Members and Total SHU Per Year, with the following provisions: Percentage of SHU Membership x Total SHU Per Year

5. Coffee Buyer

a. Coffee buyer can log in by inputting their username, login password and access rights to enter into online cooperative applications.
b. Coffee buyer enter and complete the coffee purchase request form that will be sent to the admin of the online cooperative application.

Manufacturers can view coffee purchase promos and the latest coffee price updates through online cooperative applications.

4.3 Implementation System

In this phase we produces several system modules, the following are some of the modules produced from the application of online cooperative application of farmer groups to web-based coffee plants that we do :

1. Home Page

This page is a page that can be accessed by application users. The features that can be used through this page are displaying information about the remaining business results (SHU), the latest updates on coffee prices and coffee variant information in the city of natural fences.

Figure 3. Home page of Application

2. Annual Cooperative SHU Info page

The Cooperative Year SHU Info page found in Figure 4 is a page that can be accessed by admin, members, treasurers, heads of farmer groups and coffee producers through the Cooperative's SHU Info menu.

Figure 4. Annual Cooperative SHU Info page

3. Administrators Home Page

The Admin Home page in Figure 5 is a page that is displayed when the admin has successfully accessed or logged in by entering the username, password and user access rights.

Figure 5. Administrator Home Page

4. Membership entry page for administrators

Admin page The Cooperative Member Entry found in Figure 6 above is an entry page that can be used by admin to add new cooperative members.

Figure 6. Membership entry page for administrators

5. Farmer group membership entry page

Admin page Farmer group entries in Figure 7 above are entry pages that can be used by admin to add new farmer groups. Data that has been sent will be stored in the farmer group table contained in the online cooperative database of high expectations. This farmer group entry can only be accessed by the admin after successfully logging in by entering the username, password and user access rights.

Figure 7. Farmer group membership entry page

5.0 CONCLUSION

The online cooperative application becomes a forum for coffee farmers in pagaralam city to be able to sell coffee directly to producers without going through middlemen, through this application coffee farmers can also monitor the selling price of coffee, then the distribution of the remaining business results which is a basic cooperative principle is also provided by this application.

The online cooperative application was built by collecting data related to the coffee sales system in Harapan Jaya coffee farmer group in the pagaralam city, then the researchers analyzed and designed the system based on existing data. The features of online cooperative applications can run well after implementation and testing.

For futher works, it is expected that in the future this application can be accessed flexibly through several mobile devices, then the deepening of more detailed cooperative concepts such as investment, business additions and other cooperative activities can be applied to online cooperative applications to further enhance this application.

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