

Accounting System Development through Production Process of Ban Chiang Kruea Pottery Group Mueang District, Sakon Nakhon Province

Niramol Nueangsittha^a
Siripaporn Yunsuk^{b*}
Jintana Junthanon^c
Nuntakan Kirdmalai^d
Udomporn Butsuwan^e

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^{a,c} *Teacher of Accounting Program, Faculty of Management Science,
Sakon Nakhon Rajabhat University, Thailand, E-mail: nnueangsittha@gmail.com, Jintana.Jun3457@gmail.com*
^{b*} *Teacher of Business Computer, Faculty of Management Science,
Sakon Nakhon Rajabhat University, Thailand, E-mail: Siripaporn.y@snru.ac.th*
^d *Teacher of Marketing, Faculty of Management Science,
Sakon Nakhon Rajabhat University, Thailand, E-mail: nantakan.k@snru.ac.th*
^e *Director of the Office of the Director, Research and Development Institute,
Sakon Nakhon Rajabhat University, Thailand, E-mail: butsuwan 8176@gmail.com*

Abstract

This research aimed to develop an accounting system using Excel for the Ban Chiang Khruea Pottery Group, located in Mueang District, Sakon Nakhon Province. The target group consisted of members of the pottery group. Data collection involved semi-structured interviews and purposive sampling, using a qualitative research approach supported by quantitative data obtained from questionnaires. The data were analyzed using descriptive statistics, including percentage, mean, and standard deviation.

The results of the study found that the development of the accounting system was jointly operated to suit the group to receive documents: 1) receipts, 2) an income-expense cash book, and 3) profit and loss statement. A try out found that most expenses were labor wages, followed by raw materials, electricity and water bills, but the incomes came from sales of the products priced between 30 to 150 baht based on the cost of production of the products compared to the similar products available on the market.

Upon an estimation using Excel Program, it was found that satisfaction toward the development was at a high level which enabled the group to truly understand the operation, the cost and the profit.

Keywords: Development, Pottery, Accounting System, Accounting Process

Introduction

The pottery at Chiang Khruea village, Sakon Nakhon province has reputation for its uniqueness for having more strength and durability than the pottery from other places because the pottery at Chiang Khruea village was “handmade” on every step which was passed over from their ancestors. What made hem unique and different from other areas was ‘the clay’ (Anuratana Phuwankham, 2020) available in the rice fields in the community. The clay has special quality in absorbing water and becomes sticky when mixing with water

and be able to make a three-dimension form which will be more durable and stronger after burning (at least approximately 800 degree Celsius).

Seeing this special quality, the villagers, therefore, set up a group to do pottery and carry on this wisdom until now. This is consistent with a study of Chiratsana Dao Sombun (2020) on Creating Product Value from Local Wisdom at Ban Mon Pottery, Ban Kaeng sub-district, Nakhon Sawan province under a creative economy concept. Currently, the pottery group has been supported by the local government of Chiang Khrua Sub-district Municipality to conserve and continue the pottery wisdom seeing its significance of restoring these skills for the sake of keeping the wisdom and making household incomes. However, the goal of this project was not only for restoring the art and local wisdom but also creating a career for members of the Chiang Khrua pottery group.

The accounting process serves as a critical mechanism in promoting sustainability within the group. Effective accounting requires individuals with appropriate knowledge and understanding of accounting principles to be responsible for record-keeping and preparing financial reports. This ensures that the accounting information adheres to standardized practices and can be utilized for operational planning, control, and decision-making (Supawadee Somsri, 2021).

Members of the Ban Chiang Khrua Pottery Group have recognized the importance of recording income and expenses to promote transparency in collaborative operations. Consequently, there is a desire to develop an accounting process that is tailored to the group's specific needs and operational context. The accounting system was therefore developed based on member input, including the creation of a chart of accounts and the analysis of actual income and expense data. This approach ensures that accounting forms, ledgers, and financial reports are practical and suitable for the group's accounting practices.

Previously, the group did not have a formal accounting system in place; only basic income and expense entries were recorded manually. This limited the usefulness of accounting data and often resulted in incomplete records. Therefore, the development of an accounting system aligned with the group's production processes integrates the use of modern technology to reflect actual operational performance. In order to improve the efficiency and timeliness of financial reporting, manual recording was replaced with computerized data entry. This transition provides the pottery group with accurate financial information for operations, planning, control, and decision-making, and establishes a framework for ongoing community-based product accounting.

Therefore, the development of the accounting system through the production system of the pottery group would include technology content used at present so that the operation data could be seen and the financial report would be done faster. As a result, the manual system for data recording was changed to use computer in operation of the pottery, planning, controlling, decision making, and creating guidelines in making an account for the community products.

Objective

To develop an accounting system using Excel Program appropriate for the pottery group at Ban Chiang Khrua, Mueang district, Sakon Nakorn province.

Literature Review

Concepts on the factors should be taken into consideration in choosing a package program on accounting.

Each package program on accounting has different good points and weak points. Choosing an appropriate program align with working objective will bring about maximum benefits for the user. The factors that should be taken into account are: (1) internal control, (2) ability in presenting evidences of accounting, (3) prices of the products, (4) ability and flexibility in corrections, (5) ability and flexibility in presenting accounting reports, (6) technological base of the package accounting program, (7) ability to transact business on the website and e-commerce such as ability to support monetary currencies or ability to response to rules or standards issued by accounting organizations, (8) reliability of agencies or product companies, (9) ability of expansion to support organization growth, and (10) being easy to use and install (Preethanit Prajakjit, 2020).

The program chosen should be appropriate, able to automatically process the data, and immediately print the report and the result could be known rapidly. The program could work on different operation programs such as Window: Windows XP, Windows 10 for LAN and can be used without limited sub-programs, support business ranging from small to large ones, supporting business such as buying-selling, services, contractor-construction, import, production and others, having both Thai version, Thai-English version, consisting 12 major systems, namely: (1) purchasing and receiving of products, (2) creditor control and other expenses, (3) booking of products and sales, (4) debtor control and other incomes, (5) inventory control, (6) check control and deposits, (7) VAT system and withholding tax, (8) ledger system, (9) fixed assets system, (10) sales analysis, (11) purchase analysis, and (12) security system.

Concepts on Quality of the System of Accounting Information Technology

The system of accounting information technology refers to a system that collects and processes the financial data or that is an economic situation which can be put in the form of accounting information being finance reports and other relevant reports such as statement of financial status, statement of profit and loss, statement of cash flows, and statement of change of shareholders, for those interested in economic data of businesses to use for business decision making in the future, for example customers' information collected from the past till present could be used to predict trends on customers' consumption in the future and for production planning as well (Preethanit Prajakjit, 2020). The concepts include: (1) If the report of the results frequently sent to the organization administrators, they can make use of it for good decision making, (2) flexibility in use and improvement refers to the system which is easy to improve or change because of its internal system or the outside situations beyond the organization's control which eventually help decrease the total capital (Wattanapong Yodrat, 2015). The benefits of the system of accounting information technology are: (1) Increasing the quality and decreasing the capital for instance the system is an instrument to test the production process of each machine when facing a problem so that the administrator can solve the problem right away, (2) Increasing work efficiency since the system of accounting information technology is an instrument to examine the inventory system just in time, (3) The system can help improving communication system such as when there is a change in taxation law, the company can keep the customer informed immediately using internet network, and (4) The system of accounting information technology helps users of the financial statement to make decision correctly.

Concepts on Management and Administration

The word Management in English means the same as Administration. Management has several meanings but here it refers to a process the manager uses arts and strategies operates his business in steps by cooperation from organization members with realization of their abilities, aptitude, needs and wants as well as their hope for progress in the organization at the same time as to achieve their set goals (Somnuek Winothai, 2019). Nowadays, management emphasizes effectiveness and efficiency. As such, resources have to be coordinated effectively and efficiently in order to achieve the goals of the organization. On business management perspective, it can be said that business management consists of five steps for administrators to follow in order to make every sector of the organization to succeed efficiently.

The purposes of the management steps are: (1) Planning, (2) Organizing, (3) Leading, and (4) Controlling from which there are three key terms: resources process, management, and purposes which could be written as a chart showing the management process.

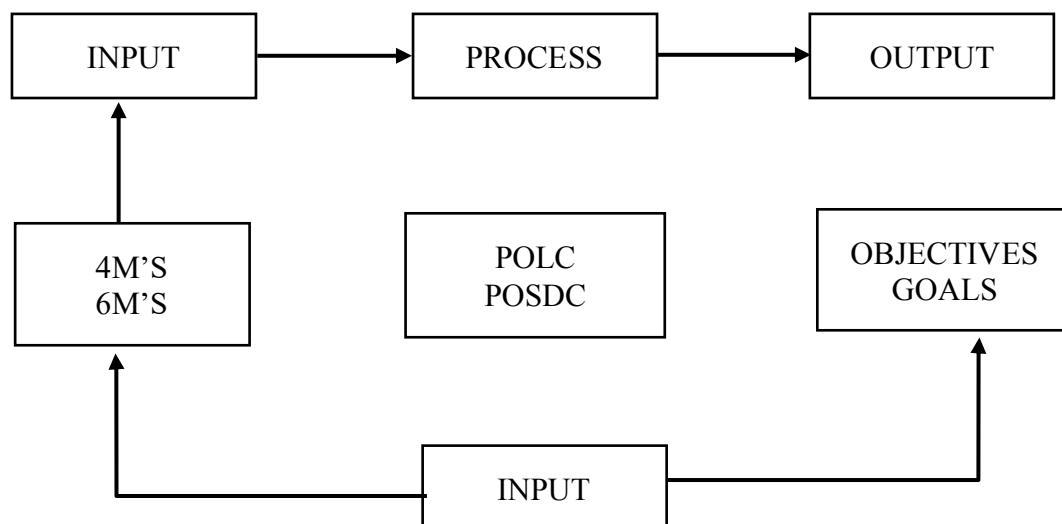


Figure 1: Process of Management

Theoretical Concept of Cost

Production cost refers to the expenses incurred by a business in exchange for goods or services, which are then utilized to generate returns or income for the organization. These costs can be used to analyze operational performance and inform investment decisions.

According to Benjamas Apisitpinyoyo (2016) and Thanandon Preedakanyarattana (2017), the production of goods involves not only direct materials and direct labor but also includes indirect materials, indirect labor, and other indirect manufacturing expenses such as water bills, electricity bills, rent, depreciation, insurance, and taxes. However, these expenses must be directly related to the production process itself and should not include expenses arising from other business operations, such as administrative salaries, office rent, electricity, or depreciation related to non-production functions.

In some contexts, these production-related costs are referred to by other terms, such as factory overhead, manufacturing burden, or indirect costs. Such costs may yield benefits in either the present or future, depending on their nature and the business's operational context.

Research Methodology

Conceptual Frame Work

The development of accounting system through the production process of the pottery group at Ban Chiang Khrua, Mueang district, Sakon Nakhon province aimed at studying and developing the standardized form of the accounting system for the pottery group. The researcher has studied the related documents and books to be the conceptual framework.

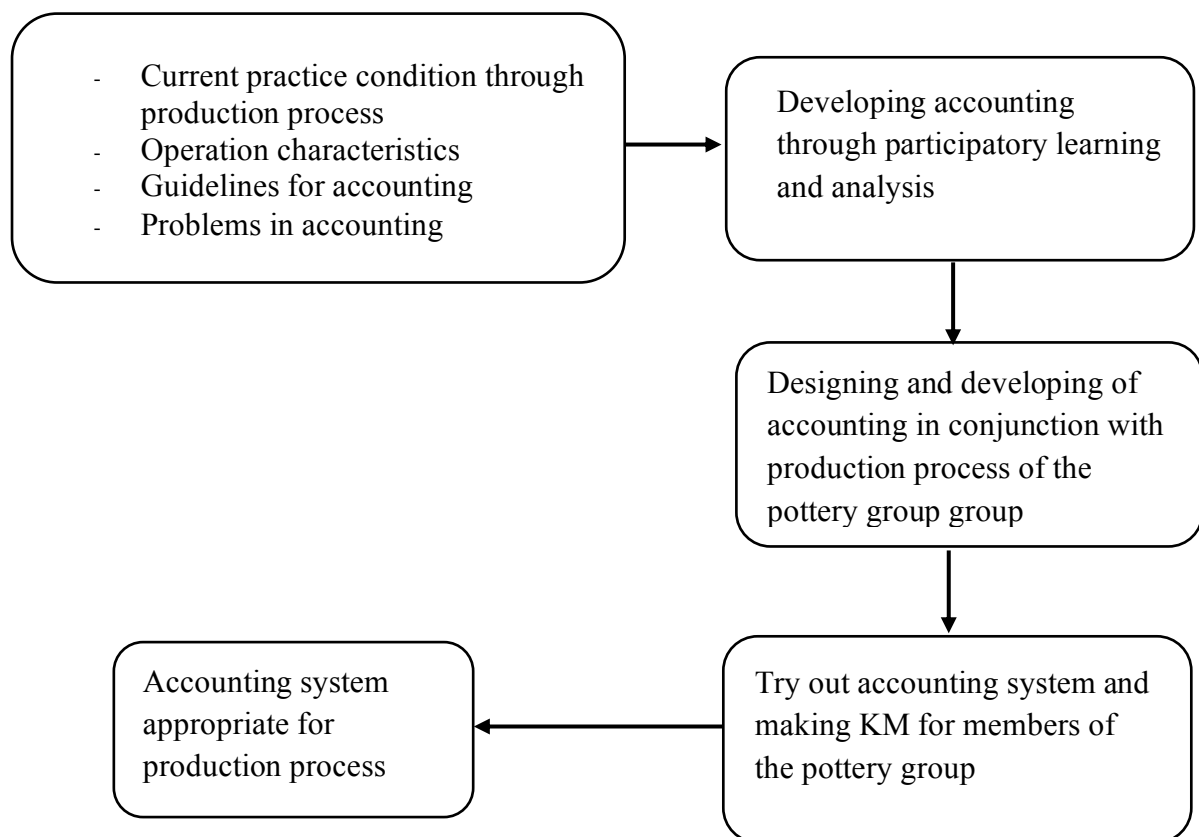


Figure 2: Research Conceptual Framework

Scope of the Study

Scope of the Content

This research investigated basic computerized accounting system using Excel Program, as follows:

1. Investigated the state of practice, guidelines for accounting and problems in accounting of Ban Chiang Khrua pottery group, Mueang district, Sakon Nakhon province.
2. Investigate the guidelines for accounting using Excel Program.
3. Investigated and analyzed the data on accounting in order to analyze the cost of the products

Scope of the Population and Samples

The population and samples used in this study were 10 persons purposively selected from Ban Chiang Khruea pottery group, Mueang district, Sakon Nakhon province.

Scope of the Area Ban Chiang Khruea pottery group, Mueang district, Sakon Nakhon province.

Scope of the Time The data were collected during April 2023 to March 2024.

This study was a participatory action research: PAR starting from researching documentary, related studies and articles. It was a quality research applying a quality study process using interviews, structured forms, and confirmed quantitative data by a questionnaire. The instrument and data collection were as follows.

Step 1 Review of literature from documents, articles and related studies in order to construct a questionnaire and an interview based on the facts, namely: method of doing accounting, functions and responsibility of accounting, problems in accounting, guidelines of practice and current management of the group.

Step 2 Organized a training workshop to transfer knowledge, understanding on ways to do accounting and steps in documentation, making records following standard of accounting, exchanging on ways of doing business of community enterprises and understanding the steps on pottery production.

Step 3 Brain storming for creating an accounting system, making documentary system for accounting records and steps of analyzing and types of production cost, producing pottery according to the steps of users' working which could be truly put into practice.

Step 4 Evaluated the result of using the accounting system and the document received from co-working which made a book and receipts for making records of cash received from selling the products, 2) receipts for recording the expenses such as buying raw materials, labor wage, and water bill, 3) profit-loss book for recording receiving and expenses in each month in order to show real profit or loss according to the real result of operation of the group.

Step 5 Held a meeting for an evaluation of the accounting system and related document to make a conclusion and give a handout and feedback to the pottery group.

Target Group

The target group refers to 10 members of the Ban Chiang Khruea pottery group, Mueang district, Sakon Nakhon province who were interviewed through a semi-structured interview form purposively selected for the study from the participating population in accounting by dividing into: (1) the group consisting of three persons who provided information on accounting who have collected the information for decision making, planning and controlling of the operation, and (2) the group working on production process for understanding of the production steps, cost and control of related documents.

Research Instruments

The study employed these methods: (1) document analysis, and (2) a semi-structured interview form to investigate problems, obstruction in accounting when collecting data, using the data for cost production, document for recording the account, steps of operation, and opinions of members of the pottery group towards development of the accounting system.

Data Collection

The participatory action research collected the data from an interview, workshop and participation observation with the following steps: (1) coordinated with local community leaders to organized small group meeting with people related to business enterprises to support career at Ban Nikhom to interview about how they do accounting, what documents they use, problems and obstacles in accounting, knowledge and understanding in using the data for their work, analysis and computation of the cost in the production of the pottery, through exchanging opinions during the interview and observation of ways of working in order to collect the data in current accounting and find the ways to develop the accounting system consistent with the way they work, (2) organized a workshop to provide knowledge and understanding about a standard accounting system, significance and benefits of accounting, making understanding on accounting data, accounting recording, and getting the trainees to try on the accounting system they have co-designed, and (3) inquired their opinions on accounting development and using the accounting data and cost accounts to set the selling price. Analysis of the even point was for production planning and the researcher analyzed the data based on the interview and the small group meeting for exchanging ideas on a participatory basis order to the information on operation, ways of doing accounting, problems on accounting, doing cost accounting to set the selling price and steps of operation of Ban Chiang Khruea pottery group. The data received would be used for doing content analysis on the state of current accounting, system of accounting, cost production analysis by considering consistency of accounting design, the operation and the standard it should be. The analysis based on the data from the interview was an analysis of opinions of the person doing financial statements and ways of developing the accounting system of Ban Chiang Khruea pottery group, Mueang district, Sakon Nakhon province.

Research Finding

From the development and presentation of appropriate accounting system of Ban Chiang Khruea pottery group, Mueang district, Sakon Nakhon province, the analysis of the basic data on accounting for designing and set the accounting plan, form of recording accounts, and setting symbols displaying activities of carrying documents in a map, a handout of accounting, and setting a rule for accounting report as follows:

1. Cash income-expense book
2. Receipts of money
3. Profit-loss statement

Development and Creating Accounting System by Excel Program of Ban Chiang Khruea Pottery Group

Analysis of creating accounting cells done by participation between the researcher and the group members for a clear understanding on implementation was classified into steps as in figure 3.

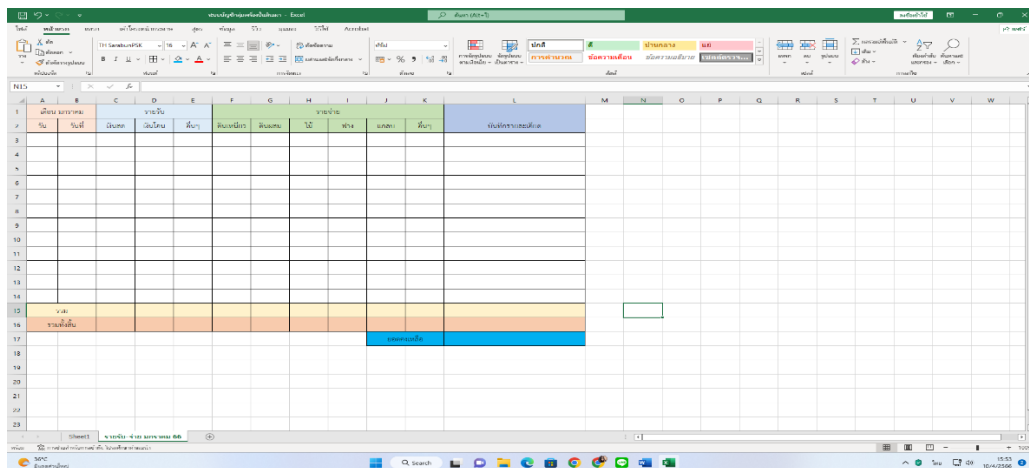


Figure 3: Showing an analysis of creating cells of accounting

An analysis of accounting items, trying on filing data on incomes- expenses classified into steps as in figure 4.

กลุ่มเครื่องปั้นดินเผาบ้านเชียงเครือ												
ทะเบียนรายรับ รายจ่าย												
เดือน มกราคม	วัน	วันที่	รายรับ			รายจ่าย						
			ยอดยกมา	เงินสด	เงินโอน	วัตถุดิบ		ค่าแรง		ค่าใช้จ่าย		
						ดินเหนียว	ทราย	ไม้	ค่าแรงปั้น(ทางร)	ค่าแรงอื่นๆ	ค่าน้ำ	ค่าไฟ
												อื่นๆ
อาทิตย์	1											
จันทร์	2											
อังคาร	3					24,000.00						
	3						990.00					
	3							2,000.00				
พุธ	4								400.00			
พฤหัสบดี	5								400.00			
ศุกร์	6								400.00			
เสาร์	7								400.00			
อาทิตย์	8								400.00			
จันทร์	9								400.00			
อังคาร	10								450.00			
พุธ	11								750.00			
พฤหัสบดี	12								300.00			
ศุกร์	13								300.00			
เสาร์	14								300.00			

Figure 4: Showing an analysis of creating cells of incomes-expenses

To view the operational performance, one can select to display the performance based on the financial reports as shown in Figure 5.

กลุ่มเครื่องปั้นดินเผา บ้านเชียงเครือ						
งบกำไรขาดทุน/งบดำเนินงาน						
ประจำเดือน มกราคม 2566						
						หน่วย : บาท
รายได้ :						
	ขายสินค้า	เงินสด				xxxxxx
	ขายสินค้า	เงินโอน				xxxxxx
	รวมรายได้ทั้งสิ้น					xxxxxx
ค่าใช้จ่าย :						
	วัตถุดิบ :	ดินเหนียว			xxxxxx	
		ทราย			xxxxxx	
		ไม้			xxxxxx	
		รวมวัตถุดิบ			xxxxxx	
	ค่าแรง :				xxxxxx	
		ค่าแรงปั้น/ค่าแรงทางตรง			xxxxxx	
		ค่าแรงอื่นๆ/ค่าแรงทางอ้อม			xxxxxx	
		รวมค่าแรง			xxxxxx	
	ค่าใช้จ่าย :					
		ค่าน้ำ			xxxxxx	
		ค่าไฟ			xxxxxx	
		ค่าอื่น ๆ			xxxxxx	
		รวมค่าใช้จ่าย			xxxxxx	
		รวมค่าใช้จ่ายทั้งสิ้น				xxxxxx
	กำไร/ขาดทุน ขั้นต้น					xxxxxx
	ยอดยกมา					xxxxxx
	รวมเงินสด					xxxxxx

Figure 5: Showing Profits-Loss Statement

Validation of the Developed Accounting Process Model for Practical Application

The research team conducted a knowledge transfer session with the members of the Ban Chiang Khrua Pottery Group. During the preliminary trial, members simulated data entry based on existing manual records to help them understand the source of numerical data. They then practiced inputting income and expense information into the group's Excel-based accounting program. The entry fields were adjusted to reflect the group's actual operations. Members also practiced generating monthly and annual profit and loss statements and jointly analyzed production cost items to assist in determining appropriate product pricing.

An evaluation was conducted to assess members' opinions regarding the effectiveness of the developed accounting process model. The results are as follows:

Overall, members' opinions regarding system effectiveness were rated at a high level ($\bar{x} = 4.15$). A breakdown of each aspect revealed the following:

1. Ease of Use: Rated at the highest level ($\bar{x} = 4.26$), particularly for the clarity of on-screen messages, followed by the ease of system navigation and the overall suitability of the user interface design.

2. User Needs Alignment: Rated at the highest level ($\bar{x} = 4.23$), especially in terms of database accuracy and completeness, followed by the system's capability to present and update information effectively.

3. Functionality: Rated at a high level ($\bar{x} = 4.20$), especially regarding the accuracy of data entry, followed by correct data categorization and overall system performance accuracy.

4. Data Security: Rated at a high level ($\bar{x} = 4.06$), with strengths in user support and problem-solving, followed by system features that match user needs and the presence of security measures against viruses and intrusions.

5. System Efficiency: Rated at a high level ($\bar{x} = 3.93$), particularly the overall system processing speed, followed by the speed of data entry, updates, and information presentation.

Discussion

The development and presentation of appropriate accounting system of Ban Chiang Khruea pottery group, Mueang district, Sakon Nakhon province was a co-analysis between the researcher and the group members of the pottery group by setting the accounting forms, namely: (1) receipts of money, (2) cash income-expense book and (3) profit-loss statement which was consistent with a study of Office of the Public Sector Development Commission and Thailand Productivity Institute (2005). A study and report on the result of creating standard system of community enterprises should have a record of income-expense account and making a simple account by computer by means of a survey of the community enterprise sample group. As a whole, an analysis of the cost of production of small and large pots found that the total cost was labor wage, such as mold wage and others, followed by raw materials such as soil and wood which was consistent with a study by Jintana Jantanon, Sakdadet Kulakun and Niramon Nueangsittha (2023) who investigated and analyzed the cost and returns from agriculturalists' water melon growing, a case study of Tha Kon sub-district, Akat Amnuay district, Sakon Nakhon province. The costs mainly came from raw materials and labor cost, but the operating expenses were electricity and water supply bills. Incomes came from real sales divided into two kinds: whole sales and retails. The sales prices were classified by types of products, ranging from 30 to 150 baht which were the same as the products on market. The set prices had impact on setting the returns, being consistent with a study of Sitthichai Hathachot and others (2020). The cost and the returns of Tilapia fish raising in Sakon Nakhon province effected the profit from the fish raising. The cost increased but the sale prices changed the returns, being in line with a study of Phimjai Phromsuwan and Jidapha Haemawang (2020).

The feedback to the results in using the accounting system at Ban Chiang Khruea pottery group revealed that, based on the members' opinions on the efficiency of the accounting system using the created Excel Program, it was easy to use, direct to the needs and wants, the system of increasing and decreasing of data was correct, the security system was good and fast in working according to the system and necessity of use of the members in Ban Chiang Khruea pottery group. This was consistent with a study by Wijitrat Boonthong (2016) who investigated an appropriate accounting system of the National Village and Urban Community Fund in Mueang district, Nan province. Originally, development of the accounting recording was the accounting system that recorded the items of all activities together, including activities of savings and activities of the one - million *baht* fund. Later on, an accounting system was developed to be able to assess each activity, with recording details, documents accompanying the account, and a complete set of financial reports, a good internal control and that it could be examined and could enable the entrepreneur to examine the financial data efficiently.

Suggestion

1. Suggestions for Application

1.1 The members of Ban Chiang Khruea pottery group, Mueang district, Sakon Nakhon province could make use of the data recording the incomes-expenses for an analysis and planning in order to find the real cost and set the way to lower the cost.

1.2 The members of Ban Chiang Khruea pottery group, Mueang district, Sakon Nakhon province could make use of the data on the sale prices to set higher sale prices.

1.3 The members of Ban Chiang Khruea pottery group, Mueang district, Sakon Nakhon province could forward the data on the personnel problems to the local administration organization to run activities for career promotion for the new generation.

1.4 The members of Ban Chiang Khruea pottery group, Mueang district, Sakon Nakhon province could take the data for planning to look for raw materials such as soil, firewood and sand which are currently rare because of their decreases, but the prices are higher. Due to several causes and factors, the soil and sand are currently adequate for production, but the prices may be higher. For the firewood for burning, its price is also higher since it has to be brought from other sources far away. The government sector also limits the area for cutting small trees.

2. Suggestions for future study

2.1 A study should be made in other areas or production of similarity in order to analyze and compare good points, weak points and the those should be improved,

2.2 The member group of the pottery should adjust themselves up to the modern age both in production and sale channel through online media but maintaining the local identity.

2.3 Entrepreneurs should develop the pottery to have better quality and have more forms of production to respond to the needs and wants of groups of customers.

2.4 Entrepreneurs should promote their descendants in the community to have interest in pottery and develop the existing personnel to become important labor force for production in the future.

References

- Anurat Phuwantham. (2020). *Development of Dan Kwian Clay for Appliance Industry on Dining Table*. Research Report, Suranaree University of Technology.
- Benjamas Apisitpinyoyo. (2016). *Basic Cost Accounting*. Bangkok: Se-Education Public Company Limited.
- Jintana Janthanon Sakdadet Kulakun and Niramorn Nueansittha. (2023). An Analysis of the Cost and the Return of Water Melon Growing of Farmers, A Case Study of Thakon Sub-district, Akaad Amnuay District, Sakon Nakhon Province. *Journal of Management and Development, Ubon Ratchathani Rajabhat University*. 10(1), 37-50.
- Office of the Public Sector Development Commission and Thailand Productivity Institute. (2005). *Handout for Planning of Knowledge Management*. Bangkok: Office of the Public Sector Development Commission and Thailand Productivity Institute.
- Phimjai Phromsuwan and Jidapa Maewang. (2020). *A Study on Analysis of the Cost and the Returns of Crab Raising in Salt Water and Brackish Water of The Agriculturalists at Village Group 4 Pate Vellage, Wangwon Sub-district, Kantang District, Trang Province*. Bachelor of Economic, Faculty of Management, Songkhro Rajabhat University.
- Preethanit Prajakjit. (2020). *Causative Factors of Accountin Information System Affectingthe Quality of Financial Report of Small and Medium Enterprises in Bangkok*. Independent Study. Master's Degree in Accounting, Faculty of Accounting, Sri Pathum University.

- Sitthichai Hathachot, Ketnaphat Sripairot, Orapin Jintasathaporn, & Srinoi Chumkham. *Costs and Returns of Nile Tilapia (Oreochromis niloticus) Farming in Sakon Nakhon Province. Kaen Kaset Journal*, 48(4), 727–732.
- Somnuek Winothai. (2019). Management Potential of Community Enterprise Group, Paktho District, Ratburi Province. *Kasem Bundit Journal*, 20(1), 53-73.
- Suphawadee Somsri. (2021). A Study of the State of Accounting Following the Guideline of the Department of Cooperative Auditing, A Case Study of Chan Maphrao Thap Sakae Community Enterprise, Thap Sakae District, Prachuap Kiri Khan Province, *Academic Journal, Northern Bangkok University*, 10(2), 1-10.
- Thanandon Preedakanyarattana. (2017). Cost Analysis. *Rajamangala Lanna Journal, Rajamangala University of Technology Lanna*, 5(2), 77–91.
- Wijitrat Boonthong. (2016). *Appropriate Accounting Systems for the National Village and Urban Community Fund*. Rajamangala University of Technology Rattanakosin.