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### VALUE CHAIN MANAGEMENT MODEL OF BETONG CHICKEN BREED FOR POVERTY REDUCTION IN THE SOUTHERN BORDER OF THAILAND

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**Keywords: Betong Chicken, Value Chain Management Model, Poverty Reduction, Three Southern Border Provinces Of Thailand.**

#### **ABSTRACT**

This research aims to address poverty in the southern border areas, the goal is Betong chicken is used as a career tool for poor households. The research used the action research was during the period of September 2019 to March 2020 with the total of 275 households, in the southern border, the research was planned to operate in 2 different phases. The first phase is to assess the potential of the farmers, by letting the households in poverty go through a trial of raising 5 Betong chickens. Upon passing the evaluation, 100 households will be selected to go through to the second phase and raise 15 Betong Chickens. At 4-4.5 months old, a saleable male Betong Chicken will weigh around 2-2.5kg and a saleable female Betong Chicken will weigh around 1.3-1.9kg. As for the marketing aspect, individuals have been procured to connect the market opportunity and households in poverty to market Betong Chickens at the price of 100-110 Baht per kilogram, the results show that the cornerstone of any successful poverty alleviation project is building social capital, through jobs creation, education and support. These 3 factors were mistakes made in previous projects which resulted in unsatisfactory results. Based on in-depth analysis of the value chain management model, improvements were made to the primary and supporting activities. Namely, leveraging on university resources and technology, co-operation from various government agencies and providing intuitive knowledge and know-hows.

#### ***Significance Poverty Alleviation Model***

Poverty is a multidimensional phenomenon, and as such, strategies to reduce it should recognize and address its different manifestations. The following approaches, conceived and evolving over time, can be considered part of the developmental efforts to address the multidimensional aspects of rural poverty,

recognizing the role of agriculture as an important sector (Takagi and Campos, 2019). The latest report from The World Bank analyzes Thailand's poverty and inequality trends based on official government statistics. It is estimated that between 2015 and 2018, Thailand's poverty rate increased from 7.2% to 9.8% (Kongrakkiathiyos, 2020), increasing from 4,850,000 to 6,700,000 people. The increase is spread across 61 out of the 77 provinces of Thailand. Therefore, in order to successfully alleviate poverty, it is important to ensure close collaboration among the different provincial organizations to tackle each aspect of each households' poverty problems. The Thai government has implemented policies to address social inequalities, which is one of the causes of social unrest and tensions. The three southern border provinces have a higher poverty rate than the national average in Thailand (Department of Community Development, 2018), it is expected that tackling the local poverty will reduce migration and hence leading to peace in the region.

“Distribution of goods and money to the people is a temporary aid and unsustainable – whereas to give people a tool to survive is to give them a career”, Royal Decree on December 23, 1999. The Royal Decree reflects His Majesty King Bhumibol Adulyadej royal wishes for Thai people to be self-reliant, hence, the royal commissioning of projects to promote career and professions for Thai people. Previous poverty alleviation projects conducted by the local government agencies have no impact in reducing poverty and social inequality in Thailand. The households in poverty are still unable to be self-sufficient. As is the case of the Quality of Life Improvement Project by The Southern Border Provinces Administrative Centre (SBPAC), which attempted to develop the community by providing financial support to solve problems faced by each household. Community forums were conducted to understand locals' pain points and needs. 157.6 million baht were distributed to 1,970 villages in 3 southern border provinces with each receiving 80,000 baht, with aims to improve various segments. The project was unsuccessful due to non-intuitive reporting format, inefficient resources allocation, low community forum participation rate and inability to tackle the root causes of poverty (Sukrasem, 2013). Another project conducted by SBPAC, is the Peaceful Community Development Project, in accordance with the Sufficiency Economy Philosophy. Its goal was to improve the locals' financial independence by locals' active involvement in the planning stage with the concept of “Think for yourself, make your own decisions, make your own choices”. Covering 22,439 households in 5 provinces, Narathiwat, Pattani, Yala, Songkra and Satun. Grants were provided to households that consist of elderlies above 60 years old, 10 or more members, handicapped members, divorcee or orphans (with annual income not exceeding 120,000 baht per annum). Training on career development was also conducted as per the feedback received from the locals. The project was unsuccessful due to intricate grant payout processes, one dimensional solution and inadequate knowledge on households' specific needs (Sukrasem, 2013).

The overwhelming source of reduced poverty in Africa was the income growth within the agricultural sector. In Nigeria and Egypt, the income growth and

structural changes worked concurrently to alleviate poverty (Page and Shimeles, 2015). The researchers were then inspired to alleviate poverty by building social capital, through jobs creation within the agricultural sector, education and support instead of giving handouts, hence they conducted this study to understand the specific needs of various households in poverty. As demonstrated in China's solution to reduce poverty among their population of 1.4 billion people. During the period of 2013-2015, the Chinese government analyzed the poverty situation by sending experienced government officials to interview and collect information from the 89 million residents in poverty, the information collected includes, health and income information and any hardship faced by the residents. In order to support those 89 million residents in poverty, the Chinese government allocated funds into different segments to cater to the unique problems faced by each village. The success of this policy was brought about by tweaking their solution to solve each villages' unique problems; hence the Chinese government was able to alleviate 10 million residents out of poverty annually, with goals to eradicate poverty in China by 2020 (Meengern, 2019).

### ***Value Chain Management Model of Betong Chicken Breed***

Betong Chicken, also known as Guang Sai Chicken, originated from Lan San breed, a Chinese native meat breed chicken brought into Thailand by Chinese immigrants. It was first brought into Malaysia by a group of Chinese immigrants from Guangxi Province and gradually arrived in Thailand as they migrated on foot to Betong District in Yala Province and Pandang Besar in Sadao District in Songkro Province. The chicken has since become a local delicacy in the Betong district. It is raised for its meat, known for its delicious taste. It has a light-yellow skin, a slightly yellow and succulent flesh, no fat and an aromatic scent (Animal Development Bureau, Department of Livestock, 2015). Despite its popularity among the Chinese community, marketing competitiveness must be prioritized.

The research of the Value Chain Model of Betong Chicken, specifically into the relationship between primary and supporting activities within the value chain, helps the researcher to analyse the problems faced in Betong Chicken farming and were able to design a Betong Chicken farming plan to alleviate poverty in the three southern border districts of Thailand. Betong Chicken farming was chosen due to the declining prices of agricultural commodities. Rubber, the main cash crop for farmers in Southern Thailand has been declining drastically, thus affecting the livelihood of many. Overall, the impact on the economy and society has been devastating. University resources were integrated back into the community. Resources like Animal Sciences knowledge on promoting Betong Chicken Farming as an occupation. Which in turn, leverages on local resources to maximize the benefits of community development. Social Immunization is then established through the education and promotion of agricultural careers, which equipped the households in poverty with the ability to support themselves financially and identifying community leaders to extend the learnings to other households in the community; hence, benefiting the community.

### ***Betong Chicken Farming Model – for quality Betong Chicken***

Based on the field work conducted, different poultry farming methods, namely, caged method, semi-free-range method and free-range method. Each method was chosen based on the geographical challenges faced by each household.

#### ***Free range:***

Free range method allows poultry to roam and scavenge for food freely around the compound without any constraints; greatly reduces stress and aggression. The advantages of this method are the near zero production cost incurred and provides the best chicken welfare. However, the main disadvantages are difficulties in managing flock movement, higher mortality rate due to natural predator, and constant movement causes poor quality control over the meat to fat ratio (Poultry Farming, 2018).

#### ***Caged Method:***

Caged Method is the most popular when farmers experience space constraints. Small cages made of local wood and bamboo are used and each cage usually accommodates about 4-5 chickens. The advantages of this methods are easy management of flock and ability to fend off natural predators (Poultry Farming, 2018). On the other hand, restricting their movement prevents them from scavenging for food, hence, increasing the cost of production on feed. They also become aggressive and stressed as they must compete for food and spaces, thus, lowering the survival rate and chicken welfare (Poultry Farming, 2018).

#### ***Semi-free-range Method:***

Semi-free-range method reaps the benefits of free range and caged method, allows the chickens to scavenge for food during the day and are kept in cages at night to fend off natural predators, providing them with a safe environment. Training were also conducted to educate on the importance of sex segregation and bird welfare as the roosters are generally more aggressive and tends to pick on the hens' feathers causing redness on their bodies. This lowers the saleable value as the chickens produced will not meet the optimal characteristics.

This method is the most popular among the participating households, as it allows better quality control and chicken welfare, lower mortality rate and Near Zero Production Cost.

### ***Value Chain***

The value chain analysis framework for this paper consists of three components. The first consists of identifying key limitations for value chain improvement namely market access restrictions, availability of value-add infrastructures, constraints in resources and institutional voids. In the second component, the paper defines the 3 aspects of value chain. Namely value addition, horizontal and vertical chain-network structure and value chain governance mechanisms. Lastly, upgrading opportunities are identified and brought up for value addition. Which includes the search for markets, value chain-network structure and the governance form of the chain (Trienekens, 2011).

In value chain, business operations are categorized as Primary Activities and Secondary Activities with details as follow:

### ***Primary Activities***

1. Inbound Logistics – activities involving transportation, storage, distribution of raw materials and inventory management.
2. Operations – activities involving processing of raw materials into saleable goods, i.e. manufacturing and assembling activities
3. Outbound Logistics – activities related to storage, collection, distribution and services provided to customers
4. Marketing and Sales – activities related to persuading customers to purchase goods and services such as advertising distribution channels
5. Services – activities that cover services to add value to goods, like after-sales services, product introduction, sales support activities, activities that help encourage core activities to be implemented.

### ***Secondary Activities***

1. Infrastructure - consists of activities such as accounting, legal, finance, control, public relations, quality assurance and general (strategic) management.
2. Technological development - pertains to the equipment, hardware, software, procedures and technical knowledge brought to bear in the firm's transformation of inputs into outputs.
3. Human resources management - consists of all activities involved in recruiting, hiring, training, developing, compensating and (if necessary) dismissing or laying off personnel.
4. Procurement - the acquisition of goods, services or works from an outside external source. In this field company also makes decisions of purchases.

### ***Feed Conversion Ratio***

Feed Conversion Ratio (FCR) is a ratio or rate measuring of the efficiency with which the bodies of livestock convert animal feed into the desired output. The FCR formula is as follow:

$$\text{Feed Conversion Ratio} = \frac{\text{Total amount of feed (in kg)}}{\text{Total animal weigh (in kg)}}$$

The Feed Conversion Ratio is used to calculate the cost of feed for basic farming, compares the quality of each type of feed and helps with the decision making prior to purchasing the feed (Affordable Animal Feed, 2017). As per the relevant literature review, the researchers have created a framework to study the Value Chain Management Model of Betong Chicken Breed for Poverty Reduction in the Southern Border of Thailand.

## **RESEARCH QUESTIONS**

There is a lot of evidence that agriculture can contribute to poverty reduction beyond a direct effect on household's income. Agricultural productivity can

therefore be a first step or engine of growth leading to greater income for a country (Heath, 2007). Agriculture is still the key in Rural development and poverty reduction (ANri'quez, 2007). Conceived and evolving over time, can be considered part of the developmental efforts to address the multidimensional aspects of rural poverty, recognizing the role of agriculture as an important sector: Inclusive value chain development, Income diversification and employment generation, Combining social assistance with economic inclusion interventions, Local and territorial development, Participatory community development, Basic investments, Social assistance, Productive inclusion, Pro-poor value chain development (Takagi and Campos, 2019).

## RESEARCH FRAMEWORK

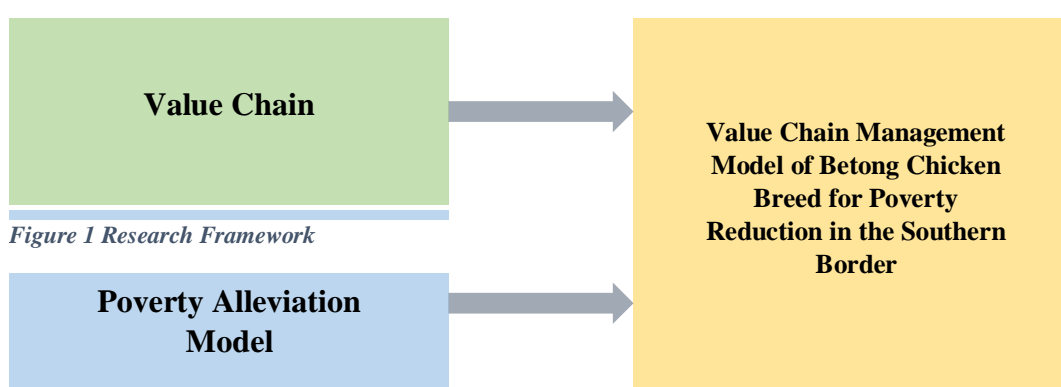


Figure 1 Research Framework

## RESEARCH OBJECTIVES

The objectives of this research are to analyze the model of value chain management of betong chicken farming to address poverty in the southern border provinces.

## RESEARCH METHODOLOGY

The research methodology used is Action Research. The planning stage consists of studying poverty in the Southern Border districts and analysis of problems in Betong Chicken farming. The goal is to find out the root causes, its solution and then, designing a Betong Chicken farming plan. The action research stage consists of examination of participating households' chicken farming ability in two phases. During the observation stage, questionnaires were designed to record the result of Betong Chicken farming trials and periodically evaluate each households' performance. During the reflection stage, both quantitative data and qualitative data were analyzed.

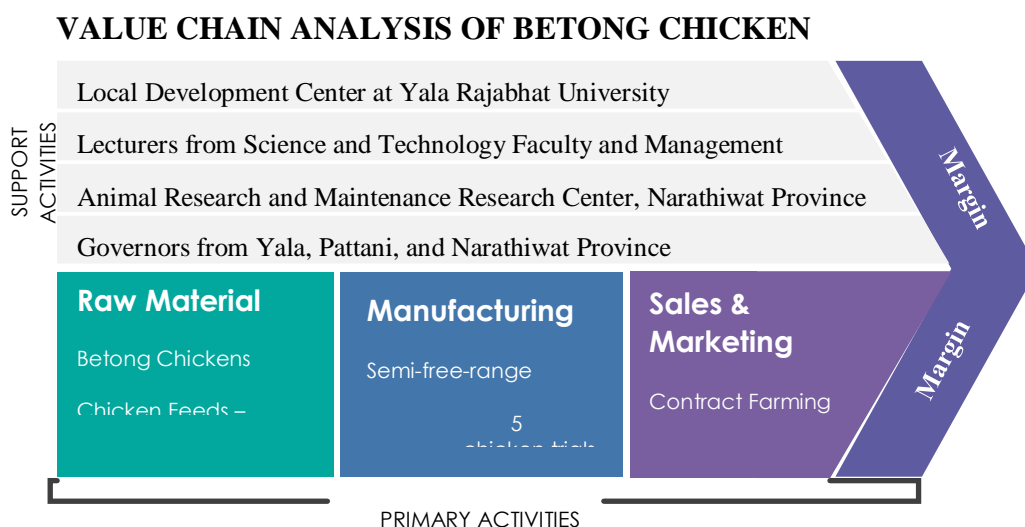
### *Data analysis:*

Quantitative data collected were analyzed using data frequency and percentage. The qualitative data collected were collected through interviews with the participating households and observation by taking photographs. The data collected were synthesized with the relevant conceptual theory and the activities in the value chain, solutions and suggestions were then proposed.

## RESEARCH RESULTS

Based on the study of external environment, SWOT, and value chain management of Betong Chicken, the key success factors of a sustainable Betong Chicken Farming to reduce poverty in southern borders of Thailand are:

The Value Chain Management Model below has been adapted to better suit the farming of Betong Chicken, and consists of 5 primary activities, categorized into raw material sourcing, manufacturing and sales, and 4 supporting activities.



**Figure 2** Value Chain Model of Betong Chicken Farming

### *Primary Activities*

#### *Raw Material*

Pure Betong Chicken specie takes 5 full months to mature into a saleable weight and condition, farmers need to put extra care and attention into choosing the right feed for the chickens in order to produce with its key characteristic of yellow skin, soft aromatic flesh and no fat. With the right feed, they can be farmed to its maturity, production cost can be reduced and shortening return of investment period hence, allowing sustainable profits for the farmers. High-protein feeds like frog feed, instant chicken feed (Betago), cooked rice, corn, grass and food waste were selected to stimulate healthy growth.

#### **MANUFACTURING**

These flocks are farmed using a semi-free-range method categorized into two phases. The first phase is to assess the potential of the farmers, by letting the households in poverty go through a trial of raising 5 chickens. Upon passing the evaluation, 100 households will be selected to go through to the second phase and raise 15 chickens. At 4-4.5 months old, a saleable male Betong Chicken will weigh around 2-2.5 kg and a saleable female Betong Chicken will weigh around 1.3-1.9kg. In this stage, supporting teams who are equipped with knowledge and skills assisted the farmers in raw material sourcing, quality control throughout the raw material sourcing, manufacturing and sales activities, to increase the farmers to gain competitive advantage against other players in the market.

#### **Sales and Marketing**

Majority of the chicken's sales are within the vicinity of Betong district and are categorized into two types, direct sales to consumers and through middlemen. In this stage, supporting teams procured individuals to connect the market opportunity and households in poverty to market the breed at the price of 100-110 Baht per Kilogram. New market strategy will be utilized to add value to pure bred Betong Chicken by focusing on elevating the one-stop manufacturing facilities to meet global standards, for example obtaining GMP, HACCP, Halal certifications. With these global standards, supporting teams can implement marketing channel development activities by setting up a distribution center to accommodate retail and wholesale activity and contact private entities to establish Contract Farming.

### **Supporting Activities**

#### **1. Local Development Center at Yala Rajabhat University**

The Local Development Center at Yala Rajabhat University conducted field work research to study the issue of poverty in the 3 southern border districts of Thailand, analysis of problems faced in Betong Chicken farming and designed a Betong Chicken farming plan to alleviate poverty in the 3 southern border districts of Thailand.

#### **2. Lecturers from Yala Rajabhat University**

Lecturers from the Science and Technology Faculty's Veterinary program and Food Science and Technology Program conducted training to educate households in poverty with poultry farming know-hows and solutions to common problems faced during Betong Chicken Farming. Live demonstrations were also conducted to ensure correct application of skills.

Lecturers from Management Science Faculty educated the households in poverty with business management, marketing and methods to conduct periodic quality evaluation and controls.

#### **3. Animal Research and Maintenance Research Centre Narathiwat Province**

The animal research and maintenance research centre leveraged on animal breeding technology to help breed Betong chickens. With the use of incubation technology, they were able to 2,500 pure breed Betong Chickens to kickstart the trials. Teams from the Research Centre procured low-cost incubators for participating households. Hence, further support in providing additional chickens are no longer required as incubators allow sustainable farming and reproduction of Betong Chickens. As a result, Near Zero Cost operation was created.

#### **4. Governors from Yala, Pattani and Narathiwat provinces**

MOU agreement was developed by the Local Development Center with 3 southern border districts to alleviate poverty. The 3 municipalities pulled their weight by identifying and shortlist suitable candidates for the trial.

### ***Process and Promotion Guideline***



Based on the analysis of the value chain model, the researchers were able to develop the process and promotion guideline developed for Betong Chicken Farming For Households in Poverty in 3 Southern Provinces of Thailand as per BMN Standard are as follow:

Step 1: Local Development Center at Yala Rajabhat University designed the MOU Agreement between 3 Southern Border Districts Governors, Yala, Pattani, Narathiwat. The local governors identified and shortlisted suitable candidates according to BMN Standard as at 2018, for the Betong Chicken Farming Trial to reduce poverty. A total of 300 households were selected, with 100 from each province. The Local Development Center then conducted workshops with the governors, Community Development Bureau, Agriculture and Livestock office and community leaders to understand the operations of local government agencies at district, sub-district and village level. The team also stepped in to understand the issued faced by the households in poverty and cater their situation. The 3 Southern Border Districts governors have asked Yala Rajabhat University to select 300 households that fall into poverty range as per BMN Standard as per 2018 to participate in this product; with the quota of 100 households each from Nong Chik district in Pattani and Ra-Ngae district in Narathiwat as these 2 districts have higher poverty rates than other areas. The governors saw the opportunities in improving their quality of life and instill a sense of self sustenance which is in line with the community development strategy of alleviating poverty in the area. Based on the fieldwork conducted by the researcher to assess and classify the households' readiness for professional development based on based on the level of assistance needed to achieve their goal of developing Betong Chicken Farming as a career to emerge from poverty. 175 households with interest in taking up Betong Chicken Farming as an occupation in each district and their field of interest are as follow:

**Table 1** Summary of the survey of career development needs of poor households who participated in the poverty alleviation project

Province	District	Idea foundation/Accounting	Betong Chicken Farming	Stingle ss Bee Farming	Coconut Oil	Mushroom cultivation	Bakery/ Thai Dessert	Thai Massage	Making Souvenir	Total
Yala	Betong	54	54	-	-	-	-	-	-	54
	Than To	4	4	-	-	-	-	-	-	4
	Krong Pinang	42	-	28	3		6		5	42
Total No. of participating households in Yala Province: 100										
Pattani	Mae Lan	6	4	-	-	-	1	-	1	6
	Nong Chik	100	31	62	7	-				100
Total No. of participating households in Pattani Province: 106										
Narathiwat	Si Sakhon	10	4	-	-	1	1	1	3	10
	Ra-ngae	100	78	1	-	12	4	1	4	100
Total No. of participating households in Narathiwat Province: 110										

**Table 2:** 175 Households in each district that fall into poverty range as per BMN Standard as per 2019 have shown their interest in taking up Betong Chicken Farming as an occupation are as follows:

Province	District	Interested Households
Yala	Betong	54
	Than To	4
Pattani	Nong Chik	31
	Mae Lan	4
Narathiwat	Ra-ngae	78
	Si Sakhon	4
Total		175

**Step 2:** Utilizing the Breeding Stock technology from Animal Research and Maintenance Research Center, Narathiwat Province, the team then proceeded to design Betong Chicken Farming Training Program, covering the areas of breeding and processing to reduce the cost of production (to Near Zero Cost). This also adds value to the value chain model of Betong Chicken Farming.

**Step 3:** With the support from local governor offices and community development centers, the lecturers from Yala Rajabhat University then proceed to conduct career development training to the participating households. Lecturers from Veterinary Science and Technology Faculty conducted training on Betong Chicken Farming Fundamentals whereas lecturers from Management Science Faculty conducted training in management and marketing fundamentals and on ways to conduct effective quality controls.

**Step 4:** The participating households then entered the first Betong Chicken Farming trial. Supplies of 5 Betong chickens, 45 kilograms of chicken feed were distributed for the household to put their knowledge into practice. This objective of this step is to assess the households' ability to raise Betong Chickens.

**Step 5:** Together with local agencies, the researcher then conducted periodic monthly field assessment to track the result of the first Betong Chicken Farming trial to evaluate the household's ability.

**Step 6:** Based on the results collected, the participating households were categorized into 3 groups, passed the first evaluation criteria, pending second round of evaluation and, did not meet the evaluation criteria. The criteria for the assessment are survival rate, physical characteristic in terms of growth and their determination and pride in their participation of this project.

**Step 7:** The participating households that passed the evaluation then moved on the second Betong Chicken Farming trial. Supplies of 15 Betong chickens, 135 kilograms of chicken feed and materials to build cages were distributed for the household to out their knowledge into practice. This objective of this step is to assess the households' ability to raise Betong Chickens.

**Step 8:** Vaccines and disease control measures were distributed to the participants during rainy season.

**Step 9:** During periodic monthly field assessment, the researcher worked with relevant local agencies to collect data via Google map to collect information on these households in poverty.

**Step 10:** Train households to farm Betong Chicken for commercial trading by promoting model farming methods; chickens that passed the physical assessments will be sold to middleman at a price of 100-110 baht; equipping them with the ability to make a living and increase employment in the area. With the households being self-reliant, they were then able to get out of poverty and no longer fall into the poverty criteria in the next BMN evaluation. During this stage, it would also be possible for the community development center to step in to update these individual Betong Chicken farms to meet slaughterhouse and procession plant requirements to meet GMP, HACCP and Halal standard to set up a distribution center for both retail and wholesale systems.

The research of the Value Chain Management Model of Betong Chicken Breed for Poverty Reduction in the Southern Border of Thailand objective is to utilize these chickens as a tool for occupation for households in poverty. During which 175 households in poverty were shortlisted, 34 in Pattani province, 38 in Yala province and 78 from Narathiwat province to go through Betong Chicken Breeding and Farming trials. The Research was planned to operate in 2 different phases. The first phase is to assess the potential of the farmers, by letting the households in poverty go through a trial of raising 5 chickens. Chicken feed and 45 kilograms of rice were provided so that households can make use of the knowledge as taught to trial. Upon passing the criteria with a 45% survival rate, the participating households will move on to phase 2 where they were given 15 chickens, greenhouse equipment, Betago chicken feed and 135 kilograms of rice. At 4-4.5 months old, a saleable male Betong Chicken will weigh around 2-2.5kg and a saleable female Betong Chicken will weigh around 1.3-1.9kg – each can be sold at 100-110 baht per kilogram. Based on the data collected during phase 1 with 100 households in poverty, the survival rate of the Betong Chickens is at 64% with a total chicken weight of 321 kilograms. Average of additional income per household from raising Betong Chicken becomes 900-1000 baht and FCR is 4.45 per kilogram as shown in table 3 below:

Based on the findings from Betong Chicken raising trial in Phase 2, with goals to promote households in poverty to start raising Betong Chicken for a living, the survival rate of Betong Chicken increased to 93.67%, with a total chicken weight of 555.55 kg. Average of additional income per household from raising Betong Chicken becomes 3,075 baht. FCR is 4.39 per kilogram as shown in table 4 below:

**Table 2 :Findings from Phase 1 Trial with 5 Betong Chicken - Mixed Gender**

<b>Findings from Phase 1 Trial with 5 Betong Chickens</b>															
Province	District	No. of households	Career Development - Survival Rate/Betong Chicken							Betong Chicken Produce			Food (in k.g.)	FCR	No. of households meeting criteria
			Total No. of Betong Chickens	No. of healthy flock	Survival Rate	No. of death	Mortality Rate	No. of Remaining Chicken	% of Remaining Chicken	No. of Chicken Sold	Total weight (in k.g.)	Additional income per household			
<b>Narathiwat</b>	Ra-ngae	78	390	279	71.54 %	51	13.08 %	60	15.38%	86	176.1	1,023.84	774	4.4	68
	Si Sakhon	4	20	5	25.00 %	15	75.00 %	5	25.00%	0	0	0	0	0	0
<b>Pattani</b>	Nong Chik	31	155	81	52.26 %	24	15.48 %	50	32.26%	19	38.2	1,005.26	171	4.48	20
	Mae Lan	4	20	10	50.00 %	5	25.00 %	5	25.00%	0	0	-	0	0	4
<b>Yala</b>	Betong	55	275	180	65.45 %	33	12.00 %	62	22.55%	54	107.1	991.67	486	4.54	8
	Than To	3	15	5	33%	1	6.67%	9	60.00%	0	0	0	0	0	0
<b>Total</b>		<b>175</b>	<b>875</b>	<b>560</b>	<b>64%</b>	<b>129</b>	<b>15%</b>	<b>191</b>	<b>34%</b>	<b>159</b>	<b>321.4</b>	<b>3,020.77</b>	<b>1431</b>	<b>4.45</b>	<b>100</b>

**Table 3** Findings from Phase 2 Trial with 15 Betong Chicken - Mixed Gender

Findings from Phase 2 with 15 Betong Chickens														
Province	District	No. of households	Career Development - Survival Rate/Betong Chicken							Betong Chicken Produce			Food (in k.g.)	FCR
			Total No. of Betong Chickens	No. of healthy flock	Survival Rate	No. of death	Mortality Rate	No. of Remaining Chicken	% of Remaining Chicken	No. of Chicken Sold	Total weight (in k.g.)	Additional income per household		
Narathiwat	Ra-ngae	68	1,020	978	95.88 %	42	4%	853	83.63%	125	256.25	3,075.00	1,125	4.69
Pattani	Nong Chik	24	360	311	86.39 %	49	14%	217	60.28%	94	192.7	3,075.00	846	4.39
Yala	Betong	8	120	116	96.67 %	4	3%	64	53.33%	52	106.6	3,075.00	468	4.39
<b>Total</b>		100	1,500	1,500	93.67 %	95	6.33%	1,134	76%	271	555.55	9,225.00	2,439	4.39

Field follow-up to each household in poverty trials of raising 15 chickens in phase 2 after 3 months, showed that an average of 1-5 chickens did not meet the saleable weight requirement and each can lay an average of 1-3 eggs. Resulting in the opportunity that these chickens can continue to reproduce, allowing the households in poverty to continue to breed Betong Chickens within their vicinity without having to wait for government agencies for additional monetary or raw materials support. Hence, a contract farming system can be established.

## **DISCUSSION AND CONCLUSION**

Tackling poverty in the Deep South The goal is to promote sustainable livelihoods of poor households, solutions to poverty, require local network participation. Both the public and private sectors have been coordinated to develop a system of contract farming with an emphasis on near-zero cost farming based on philosophy. Sufficiency economy by enabling poor households to be self-sufficient and free from poverty, to strengthen the foundations of local communities in all dimensions of the development of the southern border areas to achieve a sustainable balance. Based on the study of the Value Chain Management Model of Betong Chicken Breed for Poverty Reduction in the Southern Border of Thailand, it can be concluded that: Activities in the value chain influence the effectiveness of Betong Chicken Farming to alleviate poverty in the southern border provinces of Thailand and the efficiency of a business. This leads to the process of creating value for businesses by linking activities within the value chain from the supply of raw materials. In addition, the process of delivering goods or services to customers to create competitiveness generated by the added value in each activity, which matches the value chain concept of Michael E. Porter. The focus of activities in the value chain, from raw material sourcing activities processing, activities, delivery service to customers with the aim of building competitiveness, business, and organization. By analyzing the value associated with each stage of the activity, you can create a new value analysis (Porter,1980)

1. Upstream Activities – refers to households in poverty lacks knowledge and raw materials for Betong Chicken Farming. To equip the households in poverty the ability to be self-sustenance, raw materials and capital were provided to kickstart the farming. Yala Rajabhat University, leveraging on the resources available in the university, then stepped in to support with technology and knowledge to conduct training and assist with process innovation to educate the households with the knowhow of Betong Chicken Farming. Marketing, management and periodic quality assurance were also covered during the trainings. Which goes in line with South Korea's national reform concept of the Samaeul Undong project by President Park Chung-Hee, which states that the origin of the village development comes from the village executive committee consisting of approximately 15 members who are selected by female and male leaders in close proportions. The board has been trained to improve the potential of this committee continuously and once approved, the committee will also oversee the project, not to use the government budget unilaterally, but to raise funds from residents of the area as far as possible, and to obtain from external organizations in the form of money, raw materials, technology. The factors leading to the success of this project are: 1. The villagers are motivated by

educating and being given the opportunity to participate in the community. 2. The leaders of the village are trained to develop the potential to be the leader of change. 3. Continuity of the product as inherited by the next government.

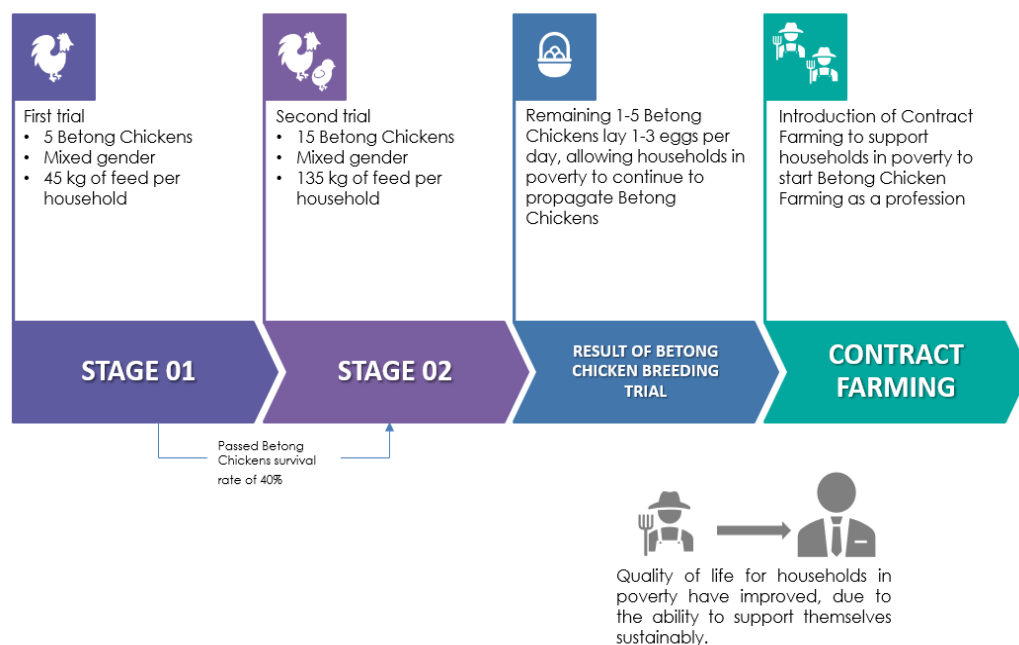
2. Midstream Activities – refers to the development of innovative technology management processes in farming and processing to reduce the production cost. The households then can farm and breed the chicken to make a living. Adding value to the value chain, but simultaneously maintaining the traditional farming methods used, Semi-free-range Method with natural feed to obtain the characteristics of Betong Chicken of lean and tender meat, as per (Chanjula, Wanichapichart, Thongchumroon, and Laochareonsuk, 2004). Betong chicken is a native chicken that is popular in the southern border provinces, Pattani, Yala and Narathiwat. Most farmers breed for consumption and sale, prefer to release and lock up in their stalls and often in rubber plantations. Different farmers use their own formula of feed, mostly with instant and natural food, for instance, mixing 21% protein instant feed with cooked rice or mixing corn to the feed to give the chicken skin a yellowish color increase (Nualnupong, Wathanajan, Wathanasit, and Somboonsuk (2015). It can be concluded that the quality of feed would shorten the investment time, hence, increase future profit level.

3. Downstream Activities – refers to the development of distribution channels by establishing distribution centres for both wholesale and retail, procure and set up contract farming connecting market opportunities and the households allowing Betong Chickens to be sold at the desired price. To add value to pure Betong Chicken, with the emphasis on the development of the individual farmers, slaughterhouse, processing plant and distribution center, to meet GMP/HACCP and Halal standard. Proactive marketing should also be done to empower the households with competitive advantage like processing the poultry to frozen Betong Chicken to support a wide range of distribution channels to meet the needs of consumers, i.e. premium Betong Chickens for restaurants, raising the standards of poultry production by the households (Stefan, Dibrell, and Davis, 2007). It is proposed that businesses in this industry will pursue either of two primary types of differentiation strategies: (1) Market-based differentiation exists when an organization seeks to set itself apart from the competition primarily through product positioning, while (2) innovation-based differentiation occurs when an organization attempts to differentiate itself through the innovative application of technology to meet customer needs. In the latter case, the organization must educate the customer about the technology and how it will meet their needs--needs that they often in fact may not even know they have (Houston, 1986; Kaldor, 1971). With market-based differentiation, there is no need for such customer education, as the products upon and through which differentiation occurs are well-known.

Poverty can only be alleviated through building of social capital, through jobs creation, education and support instead of giving handouts. Effective collaboration among the different government authorities is crucial. Governors to provide financial support and insights on each household's specific needs, local Development Center to conduct study on process innovation, and university lecturers to conduct training to equip the households with relevant



knowledge to be self-sufficient without any aid from the government agencies. Periodic follow up should also be done to provide support to the households to ensure continuity of self-reliance. To ensure sustainability and promote the drive to be self-reliant, empower community leaders to share the knowhow with the rest of the villagers. Most importantly, proper selection of parent stock with prominent characteristics of a Betong Chicken should be ensured, alongside a high protein diet to produce highest quality delicacy.



**Figure 3** Overview of Betong Chicken Trials

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