



The Development Training Model for the Production of Local Material-Based Artificial Fish Feed in Jelimpo District Landak Regency

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Abstract

Feed is one of important components in fish farming, around 60% of the operational cost is spent on feeds. The government initiated Gerakan Pakan Mandiri (GERPARI) or independent feed movement to minimize the dependency on commercial feed also to minimize the dependency on imported feed material by utilizing the abundant local materials. However, the potential of local raw materials abundance has not been able to be optimally managed due to the lack of knowledge of farmers, consequently, farmers have not been able to escape the dependency on commercial feed. The development of this training model is a medium which is expected to be able to improve the economy of the underdeveloped rural communities by increasing the value of agricultural products. The purpose of this study is 1) to identify and evaluate the training model carried out using training materials and personal training models, 2) develop the training model that are expected to optimize the improvement of knowledge and skills, 3) analyze the effectiveness of the training model. The approach used in this study refers to research and development (R & D) research. The development research procedure adopted the modified steps from Sugiyono, including: (1) the potential and problems; (2) data collection; (3) training model design; (4) validation of the training model; (5) revision of the training model; (6) limited trials of training models; (7) the final model. The results of the research on the development of training models for making artificial fish feed have been validated by experts using the Aiken's V formula with a validity coefficient of > 0.30, the results of the pretest and posttest of all participants increased consequently the developed model can be applied. Feeds resulted from the training are usable since it was responded by the fish. Unfortunately it is not waterproof. The training program is considered practical because it received positive responses from the participants. This research produced a valid, effective and practical feed production training model.

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INTRODUCTION

Feed is one of the main components in fish farming, one of the main obstacles in fish farming faced by farmers today is the problem of feed, where most of the feed needs are supplied from commercial fish feed, in other words fish farmers are still depending on factory fish feed. In their effort to reduce the dependence on commercial feed, the government created the Gerakan Pakan Mandiri (GERPARI) or Independent Feed Movement, a program for feed independence which is part of the independence of production, (Ministry of Marine Affairs and Fisheries (KKP), 2015).

Fish feed production training in Landak district has been held by the Department of Agriculture, Fisheries, and Food Security of Landak District in 2014, but the training provided had not been able to provide a solution for the fish farmers dependence on commercial feed, it was cause by the training which had not utilized local raw materials as feed formulations, feed raw materials were still brought in from other areas such as Anjongan District, Mempawah Regency, West Kalimantan (Daniel, January 2018).

The production of fish feed must follow the procedure including the selection of raw materials, calculation of feed formulations, mixing of ingredients up to the pressing stage. The training carried out by the Department of Agriculture, Fisheries, and Food Security of Landak Regency, was still lack of precision in calculating feed formulations (Selvi, January 2018).

Independent fish feed is intended to utilize various alternative local raw materials available around farmers. Another consideration is that fish feed raw materials do not compete with humans food hence will not pose any threat to the food security of the surrounding community, as well as not the raw materials of or utilized by other industries or sectors.

Badu (2012) aimed to develop a mentor training model in order to improve mentor's competency in the convection business group in Gorontalo City, as well as in the development of the models designed in this study which are expected to increase farmers' competencies (knowledge, skills and attitudes) in order that farmers are able utilize the potential of abundant local raw materials.

According to Nugroho's research, S (2016: 1) "The Development of Freshwater Fisheries Management Through the Application of Independent Feed Technology to Overcome Organic Waste and the Cost of Fish Feed" which aimed to design and create science and technology for the community needed by small entrepreneurs in this case catfish and tilapia farmers, to increase the production capacity and quality those fishes. Despite Facing the problems in the field, BP4K Landak agricultural instructor continue to provide guidance to the farming community (Paiman, 2018) coupled with the lack of instructor, the applied training model still has some weaknesses thus information on the feed production technology has not been fully understood by farmers.

According to Sofinisaet all (2015: 1847) "Community Empowerment as an Effort to Improve Rural Economy (Study of Catfish Farmers Empowerment through Education and Training in Paron Village, Ngasem District, Kediri Regency)" states that human resource development is conducted by community empowerment through education and training. Training in independent fish feed production by utilizing local feed raw materials is an alternative to improve the economic value of farmers' harvest and can be used as a solution for fish farmers to reduce the high feed costs.

According to Maria, Y's research, (2017) Carp Hatchery Training Model for Farmers, this training resulted in carp hatchery training models and instruments namely training model manuals, modules, and assessment sheets with the criteria of valid, effective and practical.

Jean, Suchatiningsih, and Rusdarti (2016) Vocational Training Model Based on the Utilization of Bamboo Shoots in Paloan Village Community Sengah Temila District Landak Regency, this study aimed to produce a valid and effective model of vocational training based on bamboo shoots utilization in the community of Paloan village, Sengah Temila district, Landak Regency. Yulius et al. (2015) in his research on the tutoring of Lumbricus rubelus worm cultivation techniques by using livestock manure media to support the self-sustainable and independent village. The method in this research was

assistance with the manufacture of worm cultivation demonstration plots. Ratnawati et al. (2014) in her research wanted to examine comprehensively about the Development Model of empowerment of poor coastal communities through marketing of clean fisheries in East Java. The results of her research on mentoring activities have increased the knowledge of group members about catfish cultivation with integration of technology, including the eradication of myths that previously prevented the community from doing catfish farming business in Losarang Village.

The objective of this study is to identify and evaluate the training implemented model. The identification and evaluation of the models including training materials, training methods and personal, develop training models for making local raw materials-based artificial fish feed which is expected to improve farmers' knowledge and skills and analyze effectiveness of using training models.

METHOD

This research uses Research and Development. This study aims to produce a product that is developing fish feed production competencies test material for students which includes three aspects, namely knowledge, attitudes and skills. This research was conducted on farmers in Jelimpo District using limited trials. The procedure for research on R & D based on Borg & Goll (1983) developed by Sugiyono (2015) is as follows:

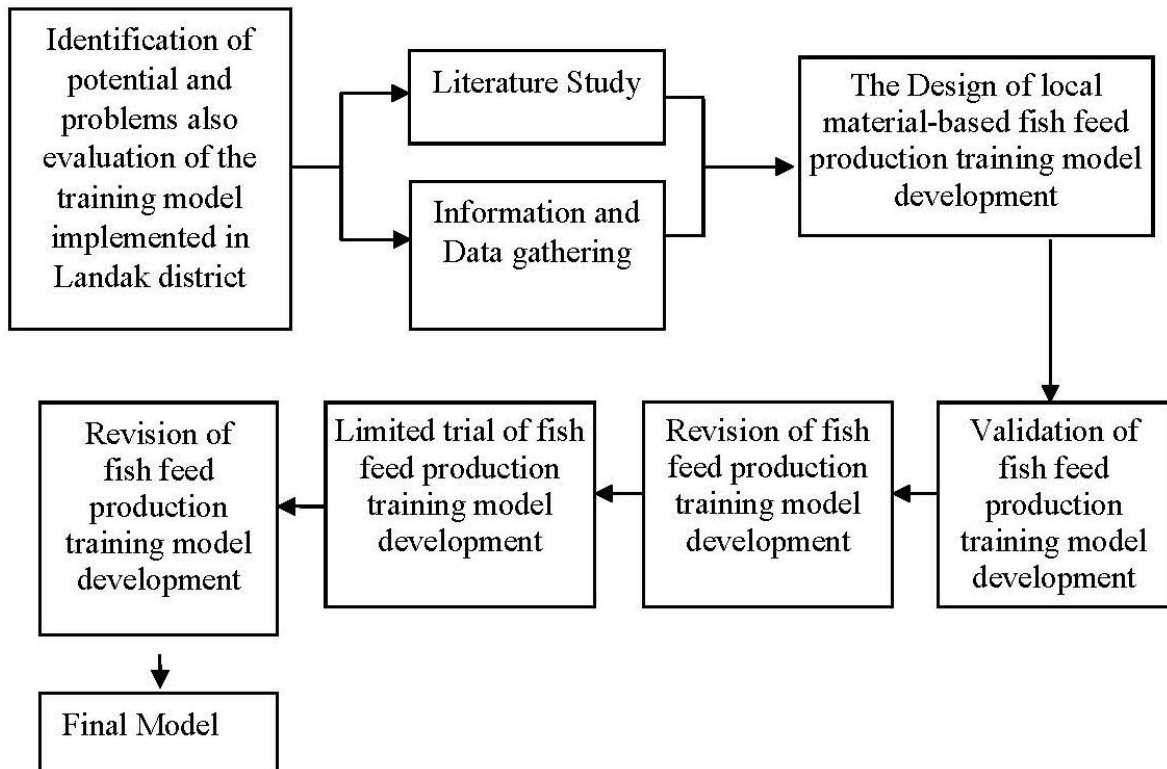


Figure 1. R&D research procedure

The data collection techniques used in this study were: (1) Expert validation, used to test the validity of the product / training model, (2) Validity and reliability of the training model on training participants sample and (3) Pre-test and Post-test, used to assess the initial knowledge and the final knowledge. The instruments used were questionnaires, pre-test and post-test questions, observation sheets and interviews.

RESULTS AND DISCUSSION

Factual Model

The factual model of fish food production training held in Landak Distrik was obtained from the result of interviews in the preliminary study. The planning of training started from assessing the potential in the village or district. The village which was considered to have certain potential was chosen to be fostered through the provision of training. Furthermore, the organizers submitted a training budget to the financial division. If the training program and budget are approved, an organizing committee is formed and the training instructor is selected according to the material. Training instructors are generally chosen from professional circles. The training is continued at the reporting stage. The factual model of making fish feed in Landak Regency is visualized as follows:

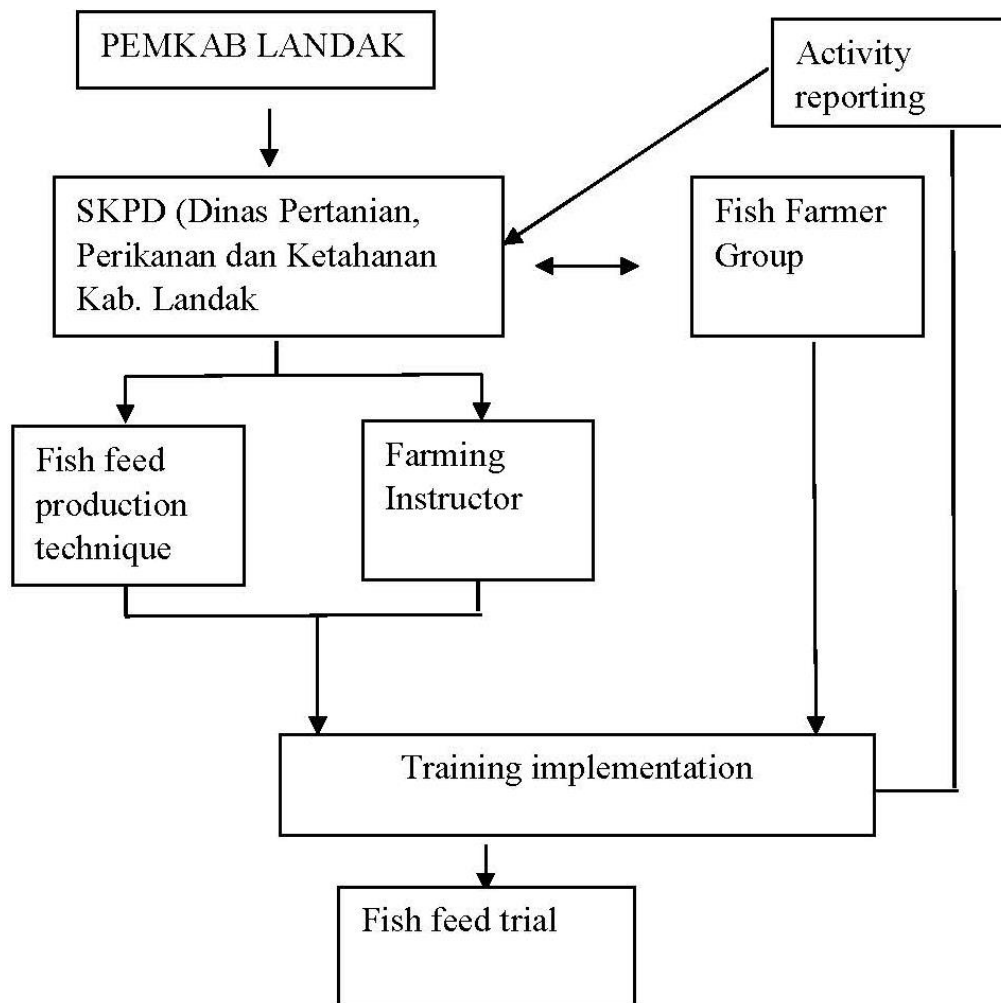


Figure 2. Factual research model

Theoretical Model

Theoretical model is a form of factual model development, the implemented development including: 1. Location of training and participants, 2. Raw materials used such as fish meal because according to Mujiman (1991) the attraction of fish to feed is influenced by the distinctive odor produced by the smell of fish powder, therefore in this feed production training, fish powder was still used and replaces vitamins that match the needs of the fish, 3. The process of model evaluation and participant evaluation. Theoretical models are visualized as follows:

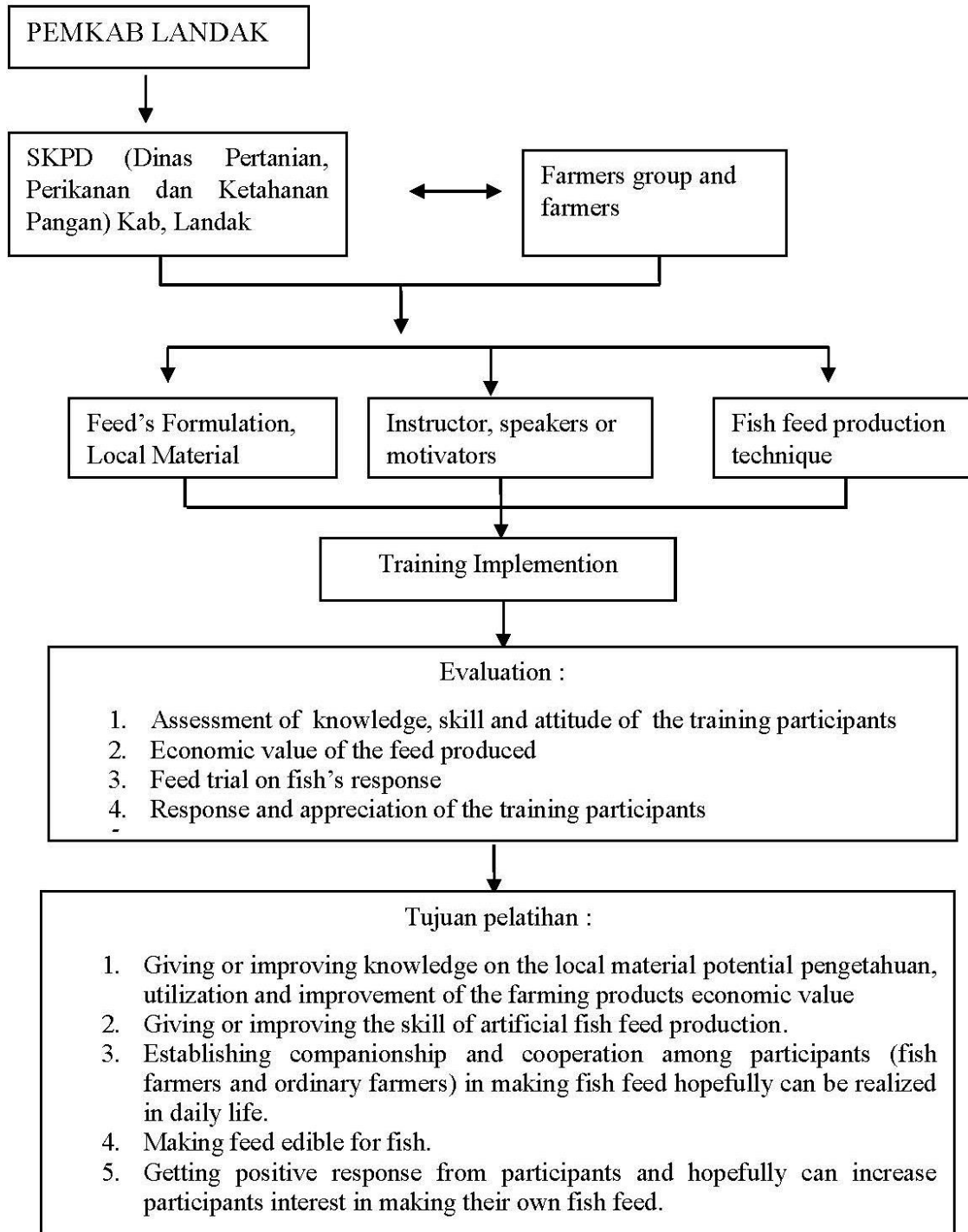


Figure 3. Theoretical research model

Model Validation and Hypothetic Models

The product of the research's data would be more valid after it has been tested for validity thus the research can be objective. One of the validity tests used to test a product is expert validation, the purpose of which is to obtain input on improving the hypothetical model. The validator in this study consisted of 4 experts, namely 2 academic experts and 2 practitioners. The research began with the designing the indicators through theoretical analysis and empirical studies. The empirical assessment is conducted using the assessment instrument sheet for the model, tools and materials, the assessment procedure and time allocation by experts, visualized as follows:

Table. 1 Instrument Sheet Validation

Component	Expert 1	Expert 2	Expert 3	Expert 4	V
	Score	Score	Score	Score	
Model Consept					
Model that will be developed fish feed production training model for farmers.	4	4	4	3	0.69
Compliance of the model development with principal of vocational education and training	4	3	3	3	0.56
Compatibility of model development with the regional need/ fish farmers problem	4	4	4	3	0.69
Training Model Characteristics					
Involving cooperation between fish farmers group and BBI (Balai Benih Ikan)	4	3	3	4	0.63
The Cooperation was facilitated be Local Government	4	4	3	3	0.63
Project-based training program					
a. group activities or discussion	4	3	4	3	0.63
b. group practice	4	4	4	3	0.69

The Validation used the Aiken's V formula, which is intended to measure content-validity-coefficient, each assessment instrument sheet is assessed by four experts. The validity coefficient ≥ 0.30 means that the item can be declared as valid (Azwar, 2014: 143). According Hapsadi, W (2017), after found the appropriate criteria, so that can be eximinated. This indicates that the model, tools and materials, procedures, and the allocation of time in training were applicable, but some input and comments regarding the improvements provided by the expert become references and correction.

The improvements made include: 1. Adding Tools and Materials: *Tampah*, Plastic Tubs, Scales, Mixers, Masks, Gloves, Tarps, Fish Oil, 2. Rectifying the Implementation procedures: Structured / sequential material, Sounds in training must be clear, Room adequate, focus of the display must be clear, 3. Improving the time allocation: Additional training time, time for delivering material and time for practice.

The following is an overview of the hypothetical training model that has been tested on a limited basis in the field. The hypothetical model can be visualized as follows:

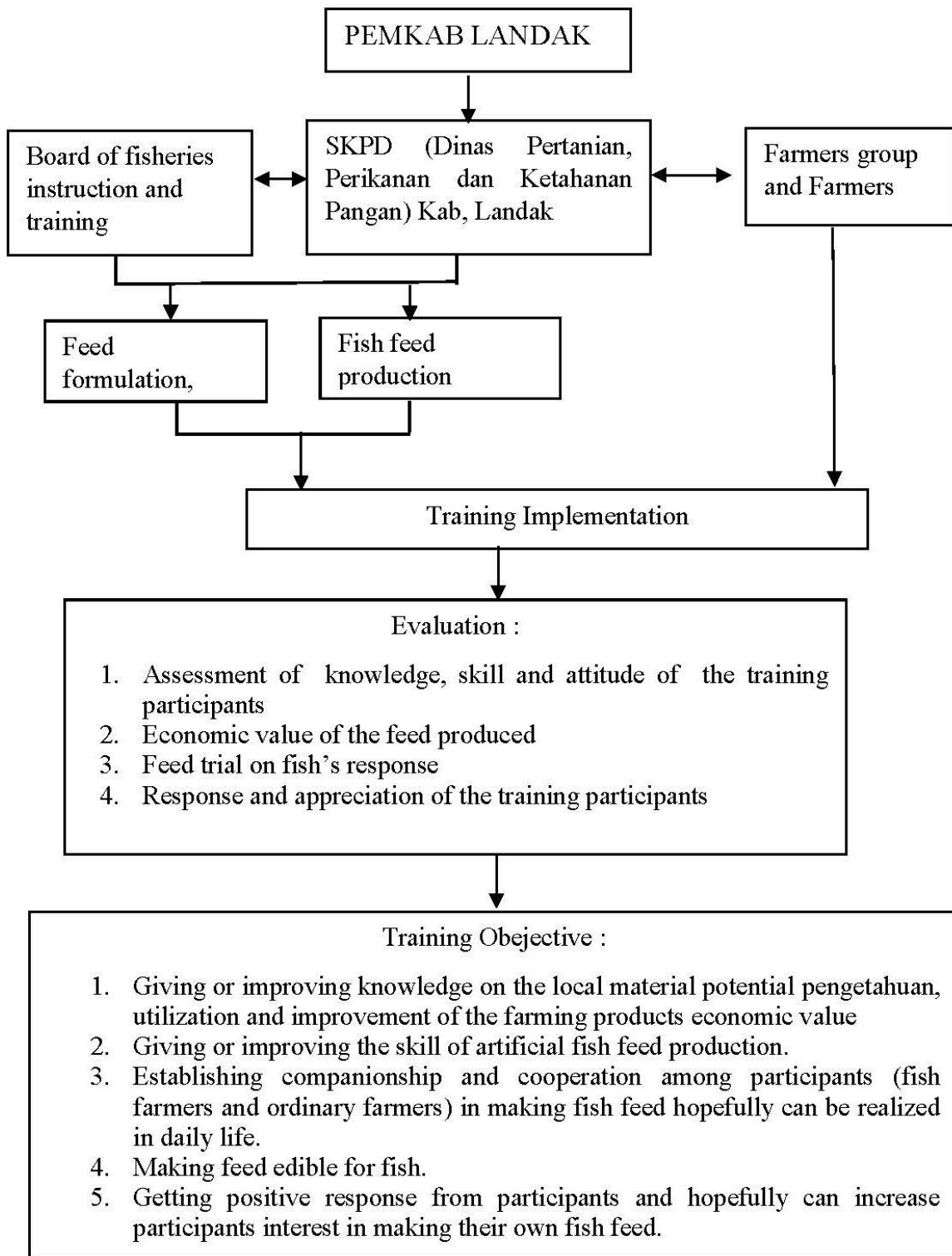


Figure 4. Hypothetic research model

Evaluation of Participants' Knowledge

The results of the normality test using the Kolmogorov-Smirnov and Shapiro-Wilk tests showed sig <0.05 means that the data are not normally distributed, thus the data cannot be tested using parametric tests, consequently non parametric tests are used, sign test with large data: N> 25.was used,

the results in Exact Sig show that the probability value is 0.00. Therefore H₀ is rejected (0.00 < 0.05). Thus the decision taken is H₁.

Therefore: the values before and after training were given are not the same in other words there is an effect of providing training on the level of knowledge of the trainees.

Evaluation of Participants skill

The skills assessed in the fish feed production training are: flouring, sifting, mixing raw materials, and pressing feed skills. Assessment for these four criteria conducted through observation, by giving score for each criterion. 30 participants who took part in the training had an average score of 12, which can be categorized as skilled.

Evaluation of Participants Attitude

Attitude evaluation was conducted based on several indicators, namely work attire, activitiness, and discipline. The results of the assessment of 30 participants who took part in the training had an average score of 14, which could be categorized as very good. The training participants have a very good attitude, this is because every farmer who participates in the training has been encouraged by the Head of Service to join the training activities properly, actively and follow the instructions instructed

Trial of Training ResultsFeed

Fish feed produced by the trainees was tested physically, this trial was conducted to test the quality of feed produced in terms of appearance, stability in water and feed stimulus level on fish.

The results of the feed trials produced by the participants in the training can be considered both from uniform appearance of food, not dusty, not moldy, good aroma, not musty, dry and food quickly consumed by fish but not resistant in water because the binding material used is in small amounts only 5%.

Evaluation of Response / Appreciation of participants

Evaluation of response / appreciation, instruments used are related to pleasure, interest in material and media, facilitator, motivation, practice and usefulness. 30 participants who took part in the training had an average score of 25 which could be categorized as very good training.

Final Model

The final model previously obtained has been tested both internally and externally, namely through an expert validation process and limited scale trials. Based on expert validation the model is declared valid. This training uses project methods based on project activities, namely: 1. Feed formulation, 2. Preparation of tools and materials, 3. Separation of raw materials, 4. Sifting of raw materials, 5. Mixing of raw materials, 6. Peleting (printing). The final model can be visualized as follows:

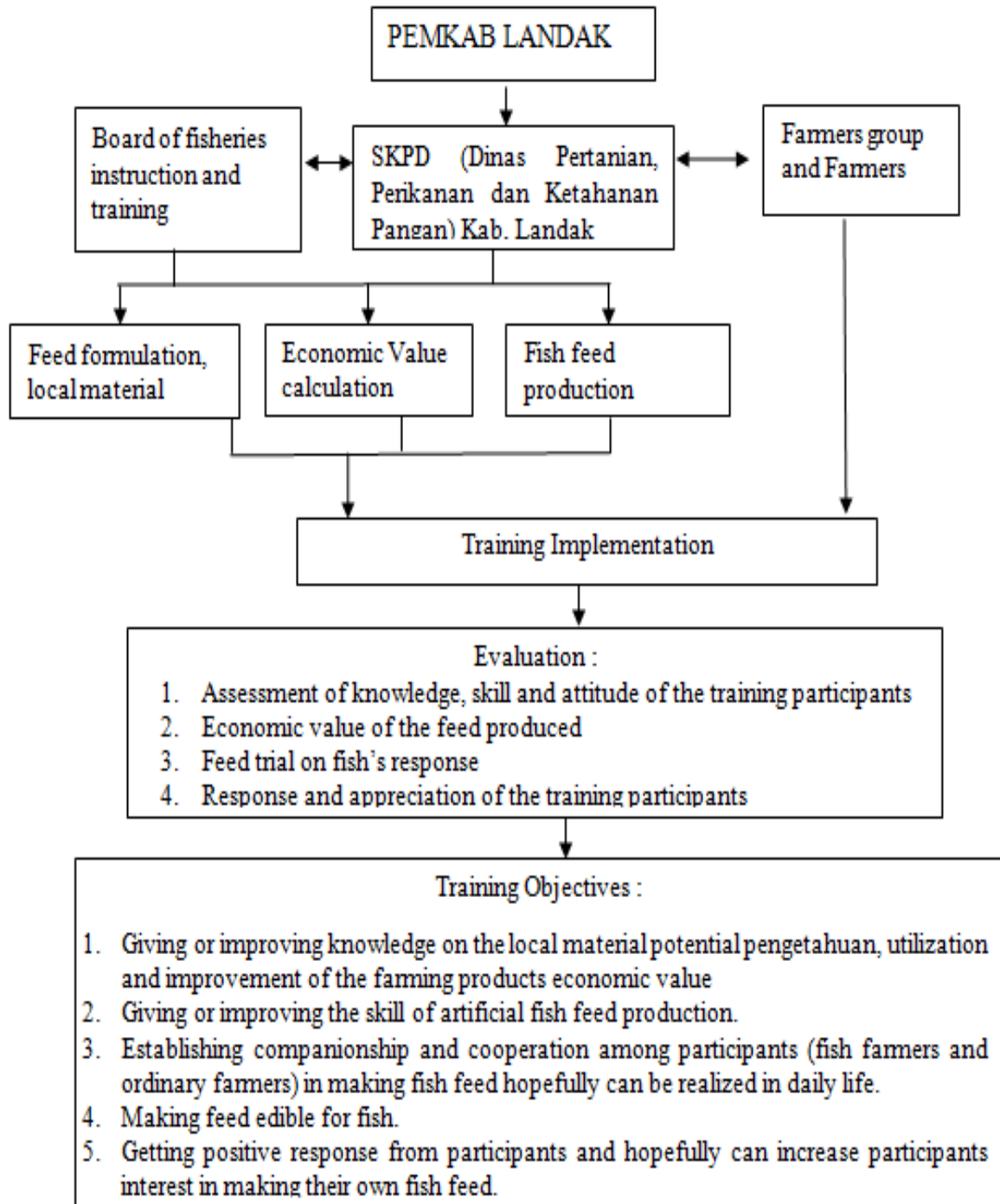


Figure 5. Final research model

CONCLUSION

The validity of this model is obtained from the validation and practitioner tests, as well as a valid developed model for the field implementation. The effectiveness of the model obtained from the Different t-Test (Paired Sample Test) with many significant differences from the results of the pretest and posttest can be interpreted that the training model of fish feed production improve the skills of farmers and the economic sector. The practicality of this model is obtained from the results of the implementation when the training ended. Participants were asked to fill out a questionnaire to see that the training was going very well.

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