

Original Paper

## AN OPTIMUM MODEL OF FISH AUCTION IN INDONESIAN FISHING PORTS IN ACCORDANCE WITH THE CHARACTERISTICS OF FISHERMAN

Ernani Lubis and Anwar Bey Pane

Department of Fisheries Resource Utilization  
Faculty of Fisheries and Marine Sciences, Bogor Agricultural University (IPB)

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### ABSTRACT

*Fishing Port as the economic center of fisheries is an important component in fishing catch system that needs to be organized and managed, especially for fish marketing activities. Indonesian fisherman income which is still low, due to the fish marketing system in the fishing port is unfavorable for the fisherman. The purpose of this study is to formulate an optimum model of the fish auction in the fishing port in order to increase the income of fisherman. Aspects which were studied comprises the major aspects such as the management aspects, socio-economic of fishing and fishing port and following by additional aspects of biotechnic of fishing port. It has been obtained the optimum model of the fish auction that is Integrated Model and Modern Fish Auction Model. The model has 2 (two) submodel. Submodel-1 : Integrated Fish auction that is a gradually and directionally implementation model of fish auction in the Fish Landing Base with due respect to the readiness of the auction and the integration courtier/skipper's (punggawa) role. This model also consider the readiness to the auction minimum and effective standards to ensure the quality of fish and sanitation in fish auction place and rearrangement the role of courtier/skipper. This model can be applied to Pontap Fish Landing Base. Submodel-2 : Modern and Continuous Fish Auction Model, that is a gradually and directionally implementation model of the fish auction with due respect to improving modernization of actual fish auction standards. This model can be applied to Palabuhanratu Territorial Fishing Port.*

**Keywords:** fishing port ; fish auction ; fisherman ; model ; Palabuhanratu

**Correspondence :** Phone : 0251 8421732, Email : [ernani\\_ipb@yahoo.com](mailto:ernani_ipb@yahoo.com)

### INTRODUCTION

Fishing port as the economic center of fisheries is an important component in the catches fisheries system that need to be utilized, organized and managed properly. Fish auction is the most important of major activity in the fishing port that need to be managed optimumly, because these activities affect the revenue of fish sale, which at a later stage determine the amount of income of fisherman (fisherman owners and fisherman laborers). Fish auction is the only mechanism of fish marketing that aimed to get a proper price for both the fisherman and the traders. But unfortunately this auction activities increasingly unimplemented in many fishing ports in Indonesia.

Based on survey results in 2011, there were 826 fishing ports (FP) and fish landing bases (FLB) in Indonesia; Most of the FP and FLB were only used minimally in marketing their catches through the implementation of the fish auction which mainly impacted to minimum income of fisherman. According to Lubis *et al.*, (2005), 40 percent of FP and FLB in the North Coast of Java, no longer carry the fish auction in marketing their catches. This condition not only affect the selling price, but also the quality of fish.

The impact of marketing without an auction mechanism resulted the increasing of brokers's role to push the fish price down, so that the fish selling price of fisherman will not

be feasible. Fisherman only act as price taker due to a weak bargaining position or even have no role at all. Some researchs suggest that one of the things that reduce the fisherman's income is due to management of the sale of fisherman catch in the fishing port which have not been optimum yet.

The ultimate goal of this research is to formulate an optimum model of the fish auction at the fishing port based on the characteristics of local fisherman.

## MATERIALS AND METHODS

This research use a survey method. Aspects studied comprises the major aspects that are management aspects, social, cultural and economic, fishing port and fisherman, followed by additional aspects such as biotechnical aspect of port, all of which related to improving fisherman livelihoods.

The management aspects studied were about optimizing the management of fish auction at the fishing port/fish landing base (FP/FLB), other activities and the existing port facilities and the environment. Socio-cultural aspects studied were socio-cultural conditions and potential of fisherman communities in ways of doing the debarkation of catch activities and their interaction in FP/FLB. Socio-economic aspects studied were socio-economic aspects of port and fisherman activities including marketing of the catch, social and economic institutions and the increasing of added value. Additional aspects that is biotechnical aspects of sanitation and handling of quality catches which affected the selling price of fish.

This study took 2 samples of fishing port that are the port which is no longer getting done the fish auction and that one which has never perform it. The samples of fishing port taken are located in and outside Java Island and distinguished by the type of fishing port (FP or PP) and fish landing base (FLB or PPI), in such a way that 2 samples are taken to represent the criteria that is Territorial Fishing Port/TFP or PPN of Palabuhanratu (type B)- Sukabumi Region and FLB or PPI-Pontap (type D)- Palopo City of South Sulawesi Province.

### Collection Data

- 1). The collection of data related to the characteristics of the fishing port.

Data collected including *Tryptique portuaire* components (**Fig. 1**) which aimed to determine the condition and the potential utilization of FP/FLB related to the case of management, activities, fishing port facilities and the environment of fishing port. Sampling for primary data was done through questionnaire and directly interview to fisherman and traders respondents, as the main actors who perform utilization of FP/FLB, the managers of FP/FLB respondent as the party that manages the FP/FLB and manager respondents of the fish auction place (FAP) as a party which was directly related to the auction activities of fishing catches. Thus there were 4 (four) types of questionnaires i.e. for fisherman, traders, manager of FP/FLB and manager of FAP. Fisherman were distinguished based on functional categories (fishing crew or ABK), motor user, ship's captain or nahkoda, ship's owner), three types of dominant fishing gear and the three categories of dominant vessel size. The number of respondents were taken purposively according to study requirement, overall there are 36 respondents for 2 FP. Sampling for secondary data done through government agencies such as the Directorate General of Capture Fisheries, Fisheries Agency, the Central Bureau of Statistics, Bappeda at the provincial and district related.

- 2). The collection of data related to the characteristics of fisherman

The aim to achieve the role of fishing port, particularly at the fish auction activities for improving the welfare of fisherman, hence participatory research methods was used, i.e. Rapid Rural Appraisal (RRA) and Participatory Rural Appraisal methods (PRA) in each FP/FLB sample.

RRA methods were used in the first stage to explore the general conditions of fishing port in the study area and social system that growing in the port and surrounding areas. In the next stage, the PRA method was used because the emphasis lies on aspects of community participation in the overall activity. This method will motivate community to share, enhance and analyze their knowledge of life conditions and village of the FP/FLB, make a plan and act. PRA methods will be performed in the second stage. As a participatory method, certainly good cooperation needs to be built between the port user community with the researchers as a team that want to see how far the port's role for the benefit and the welfare of society.

Hence, it was necessary to form the Core Team of PRA that consists of port managers, fisherman and traders who use the port, at each site maximum of 20 persons to facilitate the implementation of the focused discussion. The researcher will act as a facilitator in this process. PRA team itself will evaluate the community characteristics, the

strengths and institutional weaknesses and prepare the plans for local institutional development. In case in the RRA more assessments were made by outsiders, in PRA, fisherman or the communities themselves who actively do self-evaluation for improvement.

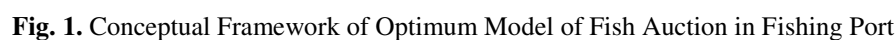
Several methods that will be used to collect the data are in-depth interview, focus group discussion, workshop with the educator, fisherman, trader, researcher, and formal and non formal leader (stakeholders) related to implementation of fish auction in port :

- a. Selection of PRA participants were carried out as follows :

Participants were purposively selected (*purposive*) in accordance with the information and issues will be explored.

- b. Analysis of field data

Data were analyzed in the field along with the participants of PRA in the form of diagram, tabulations, flow chart, which made descriptively. PRA participants had provided suggestions and ideas about the desired information pattern.



### *Data Analysis*

The data were analyzed by descriptive analysis based on fishing port method and social analysis method (RRA and PRA) through the matrix that will generate an alternative solution. Furthermore, by means of the result, the concept of optimization of fish auction model in the fishing port will be formulated in accordance with the characteristics of fisherman. The analysis performed was as follows :

- 1). Conducting analysis based on the concept of *Trytique portuaire* through problems grouping based on the 3 components namely foreland, fishing port and the hinterland to formulate the problem of utilization which is a "sub-model of fishing port utilization"
- 2). Composing various characteristics of port harbour and fishery found in the study, based on the structure of life, socially, culturally and economically.
- 3). Creating a matrix of problem solving based on the results of the problem identification (no. 1) and characteristics of fisherman.
- 4). Describing and formulating alternative solutions for the problems that meet the characteristics of fisherman hereinafter referred to as "sub-model of fisherman needs " with :
  - a. Analyzing the level of fisherman satisfaction on the existing condition
  - b. Evaluating the utilization of fishing port in past situations
- 5). Formulating optimization models of the fish auction at the fishing port. The Modeling based on system of fishing port utilization and characteristics of the fisherman. Preparation of the model was done by integrating the two sub-models; that are the sub model of fishing port utilization with the institutional arrangements that support it and sub models of the fisherman needs (point 4); with the following stages;
  - (1) Formulating, generally two sub models in fishing port sample and the institutional arrangements that support it;
  - (2) Developing a sub-model concept of sustainable fishing port utilization by designing :

- a. Service system of ship landing and loading and unloading of fish and supplies materials;
  - b. Fish auction system at the port to get a proper price and not lower the fish quality;
  - c. Lending system for the various purposes of fishing operations either in cash or in form of material supplies for going out to sea;
  - d. Sharing systems that do not harm fishing workers;
  - e. Fish handling system during in the fishing port both for fresh and not fresh fish when it landed at the fishing port;
  - f. Handling system of fish sales charges;
  - g. Handling system of hygiene and environmental sanitation in the fishing port.
- (3). Optimization of the model was done by conducting a descriptive analysis of the seven systems above that will be done effectively and efficiently in accordance with the characteristics of the fisherman.

## **RESULTS AND DISCUSSION**

### *Criteria and Problems of Implementation of Fish Auction*

Criterion for implementation of fish auction used as reference in determining the optimum model of the fish auction in this study are as follows :

### *Minimum and Effective Standard Criteria of Fish Auction Procurement*

The first criteria of fish auction implementation was criteria to hold a fish auction, of an unprecedented fish auction in a fish auction place (FAP) in FP/FLB so that to be existed. This first criteria was formulated based on field observation of FP/FLB study and the researcher experience. The criteria can be referred as minimum and effective standard criteria to asses qualitatively wether an auction can be held or not.

These criteria were then applied in FP/FLB study generating study on compliance

the auction criterion. Here are the first criteria or The Minimum and effective Standard Criteria of Fish Auction Procurement (Table 1).

*Criteria of Fish Auction Comply to International Standard of Fishing Port or The Europe Union Standard*

The second criteria was the fish auction criteria comply to International Standard of Fishing Port especially Europe Union (EU) standards. In the following section, analysis given about focused overview of fish auction implementation at FAP in FP/FLB samples, resulting the presence or absence of fish auction and its cause, and the mapping of fisherman related to socio-economic-cultural aspects of fishery in terms of punggawa/skipper-fisherman relationship patterns and its connection with (the possible) implementation of fish auction at FAP.

Criteria of auction implementation and the focused overview resulted above, together with the stage of auction modeling were used to compose an optimum model of fish auction. Here are description of fishing port of international standard or EU standar. Fishing port of international standard has criteria which the capture yield must be excellently handled in the port, at the time of landing the catch, fish handling, fish processing up to the marketing activities. Briefly, the fishing port should :

- 1) Equipped with various facilities that support the operation of fishing activities from capturing activities, fish handling in fishing port, up to the marketing.

- 2) Produce good quality of fish that are acceptable for export markets;
- 3) Have a clean and hygiene environment to support all activities in a clean fishing port as well

Fishing port management issues today are very complex, requiring a strategy to achieve good management, especially to the marketing of the landed catch in the fishing port. These problems resulted in the low income of the actors in the fishing port, particularly fisherman.

*Problems of Fish Auction in The Fishing Port*

Fishing port management issues today are very complex, hence requiring a strategy to achieve good management, particularly to the marketing of captured yield landed in the fishing port. These various problems resulted in the low income of the workers in the fishing port, especially the fisherman.

Many studies found that what made the barrier for fisherman is the limitation of the existing facilities at fishing ports, lack of transportation facilities and infrastructure to the hinterland area, limited working capital, low education, lack of good handling of the catch in the fishing port.

Limited facilities at fishing ports have been put forward by Lubis *et al* (2011), that is in the FLB or PPI Cituis there are several facilities that have affected the smoothness of the activities including a quay and the port depth, so that the results of the calculations required the addition of 154,18 meters of quay capacity and 70 cm depth of port pool dredging.

**Tabel 1. Criteria of Fish Auction Implementation at FAP (TPI) : Minimum and Effective Standard of Fish Auction Procurement**

<b>1. Criteria of the aspects of the auction requirements</b>		
Parameter	Variable	Criteria/Indicator
1. The Landed Catch	1) Catch existence 2) Catch volume 3) Catch quality	1) There is landed catches 2) Catch volume sufficient <sup>1)</sup> to be auctioned; 3) Quality of landed catch/fresh fish in the quality level of able to be consumed
2. Basic Infrastructure for Auction	1) Landing quai	Available; good condition; in function
	2) Port bassin	Available; good condition; in function
	3) Auction building : auction floor, office staff, warehouse	Available; good condition; in function
	4) Merchant/processing building	Available; good condition; in function
	5) Parking area for fish transportation	Available; good condition; in function
	6) Clean water facilities	Available; good condition; in function
	7) Ice provision facilities	Available; good condition; in function
3. Basic Facilities for Auction	8) Auction facilities : basket; scales; loudspeakers; high chair; auction officer	Available; good conditions; sufficient quantity <sup>2)</sup> ; in function
	9) Ice and ice provision facilities	Available; good conditions; sufficient quantity <sup>2)</sup> ; in function
	10) Clean water supply	Available; good conditions; sufficient quantity <sup>2)</sup> ; in function
Parameter	Variable	Criteria/Indicator
4. Organization, Manager of FAP in FP/FLB	1) Organization of FAP Manager 2) FAP manager, quality and quantity	Organization and FAP manager are available; sufficient number of human resources (meet the need); quality of human resource as FAP manager are sufficient
5. Policy/Regulations	Policy/regulation of auction	Available; support the auction
6. Catch Sellers	Fishermen of catch seller at FAP	Available; willingly; sufficient quantity (related to the fleet and catch)
7. Fish Buyer	Buyer (merchant, processor) auctioned fish at FAP	Available; willingly; sufficient quantity (associated with the ability to buy/absorb the auction output volume)
8. Market	Market absorption capacity of fresh fish/processed fish	Market potential (local, towns around the FP/FLP) available and sufficient
9. Road Infrastructure	Road infrastructure to local market and or inter-city	Available; good condition
10. Fish Transportation Facilities	Fish transportation facilities to local market and inter-city	Available; good condition

**Tabel 2. Criterias based on Auction Implementation : Capability of Auction Implementation by Auction Manager/FAP or TPI Manager**

Capability Parameter of (Basic) Manager	Variable	Criteria/Indicator
1. Capability of Facilities Provision	1) Capability to strive for provision of auction facilities for conducting auction	Available/there are auction facilities for conducting auction
	2) Capability to strive for provision of auction facilities for auction participant	Available/there are auction facilities for auction participant
2. Capability of Auction System Provision	1) Capability of auction system provision (open/closed)	There is an auction system
	2) Capability of auction supervision	There are on going supervision on the auction implementation in order to that it held fairly (open and honest)
3. Capability to Organize Auction	1) Capability to organize auction implementation	There are auction activity appropriate with the phase
	2) Capability of auction implementation in term of time	Auction activities are conducted periodically according to the planned time
4. Capability of Quality Assurance	1) Capability of quality assurance implementation on auctioned fish quality	There is quality control
	2) Capability of hygiene implementation on FAP environment	There is sanitation control
5. Capability on Making The Rules/ Policies	1) Capability on creating policies/regulations in FAP for good operation of the auction (which has not regulated by the relevant authorities, or create instances of policies that have governed by the relevant authorities)	There are written policies/rules issued by the manager of FAP



Transportation is often being a problem in many ports, as an example according to Lubis and Nirmalanti (2010), the Nizam Zachman Jakarta Fishing Port, the fish were transported from outside the area through the shore (overland), most of its conditions are less fresh and although the transport time is relatively fast but it has no optimum fish handling during the transport. The condition needs attention because most of the fish will be distributed again to it's hinterland.

However, the limitations of the capital becomes the dominant problems faced by the fisherman. The bound of fisherman to middlemen/punggawa/agent compelled fisherman to sell their catch to them. The loan will always grow considering the sale of fish has never been able to meet the loan payments so that the fisherman have to borrow again when they will do a trip in the next captures to buy supplies materials. At the time of low fishing season, the loan will further increase because fisherman can not go to sea while the needs of everyday family continues to grow. Thus, until when the loan will be paid off, the fisherman never know. This is one reason of what makes fish auction unimplemented in the fishing port. In developed countries like European countries, the auction activity is becoming more sophisticated with the use of electronic facilities and lately European Union countries already have associations of fish auction in the fishing port called EAFPA (European Association of Fishing Ports and Auction). Besides that, with the increasing of fuel high prices, it will increase the reluctant of fisherman for landing their fish in the resource fishing port considering the operational cost which are not comparable with the value of the landed catch. Another problems that also made fish auction becomes non-performance in the port is the dominance of trader in shaping the market structure detected from the pricing and the payment delays in FAP due to late payment of the traders; many economic institutions that are very commercial bringing on cash flow difficulties to the fisherman.

### *The Optimum Model of Fish Auction in FP/FLB*

Based on the condition, problem, characteristic and the auction criteria which have been obtained in FP/FLB study, i.e. the *Tryptique Portuaire* overview, the fisherman needs and abilities, problems related to fish auction regarding both in management and relevant activities and the fisherman as well, characteristic of fishing port and fisherman related to fish auction and the criteria for the implementation of fish auction which should be held in FAP, then it is composed an optimum model of fish auction through the stages as described in **Fig. 2**. Furthermore, it is composed an optimum model of fish auction at fish auction place (FAP) of fishing port and fish landing base as follows (**Fig. 3**).

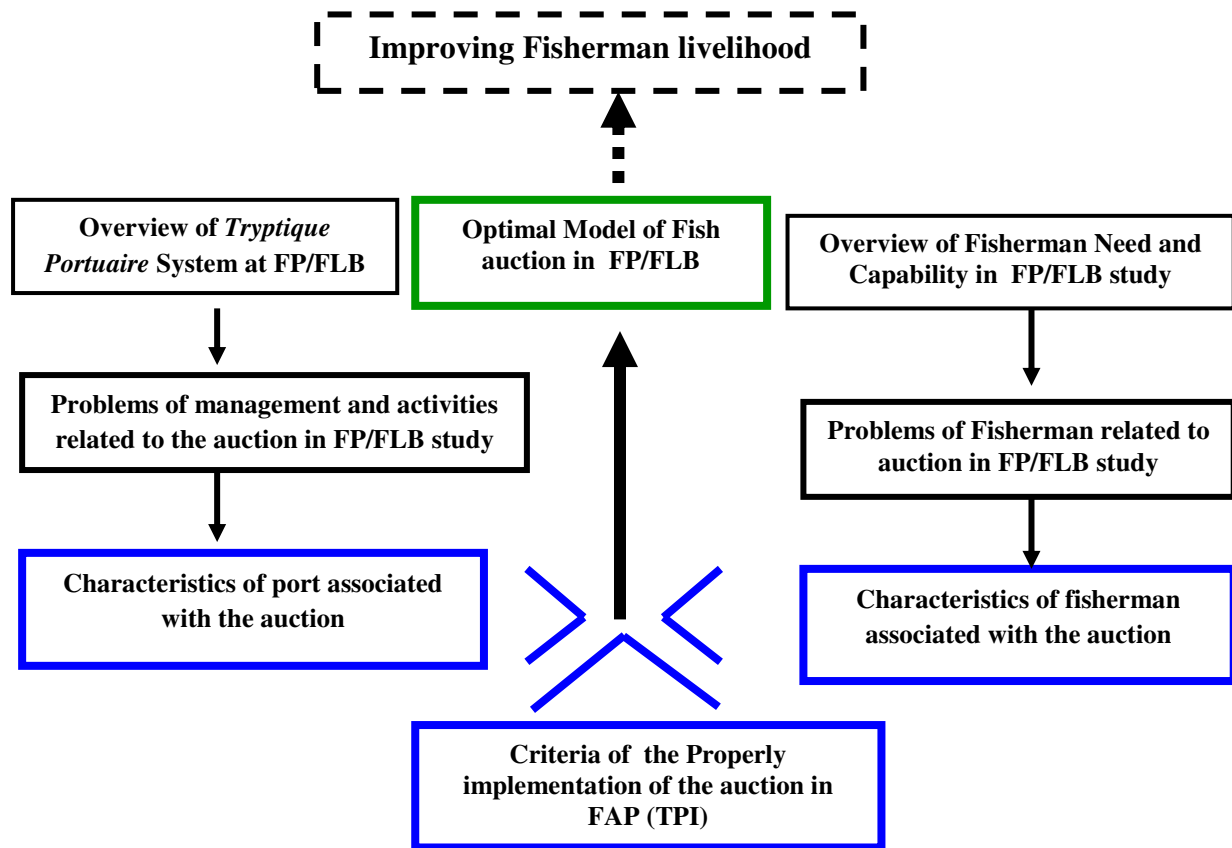
Optimum Fish Auction Model generated was the **Integrated and Modern Fish Auction Model** which has 2 (two) submodel, namely :

- 1) Integrated Fish Auction Procurement submodel
- 2) Modern and Continuous Fish Auction submodel

#### *Integrated Fish Auction Procurement submodel*

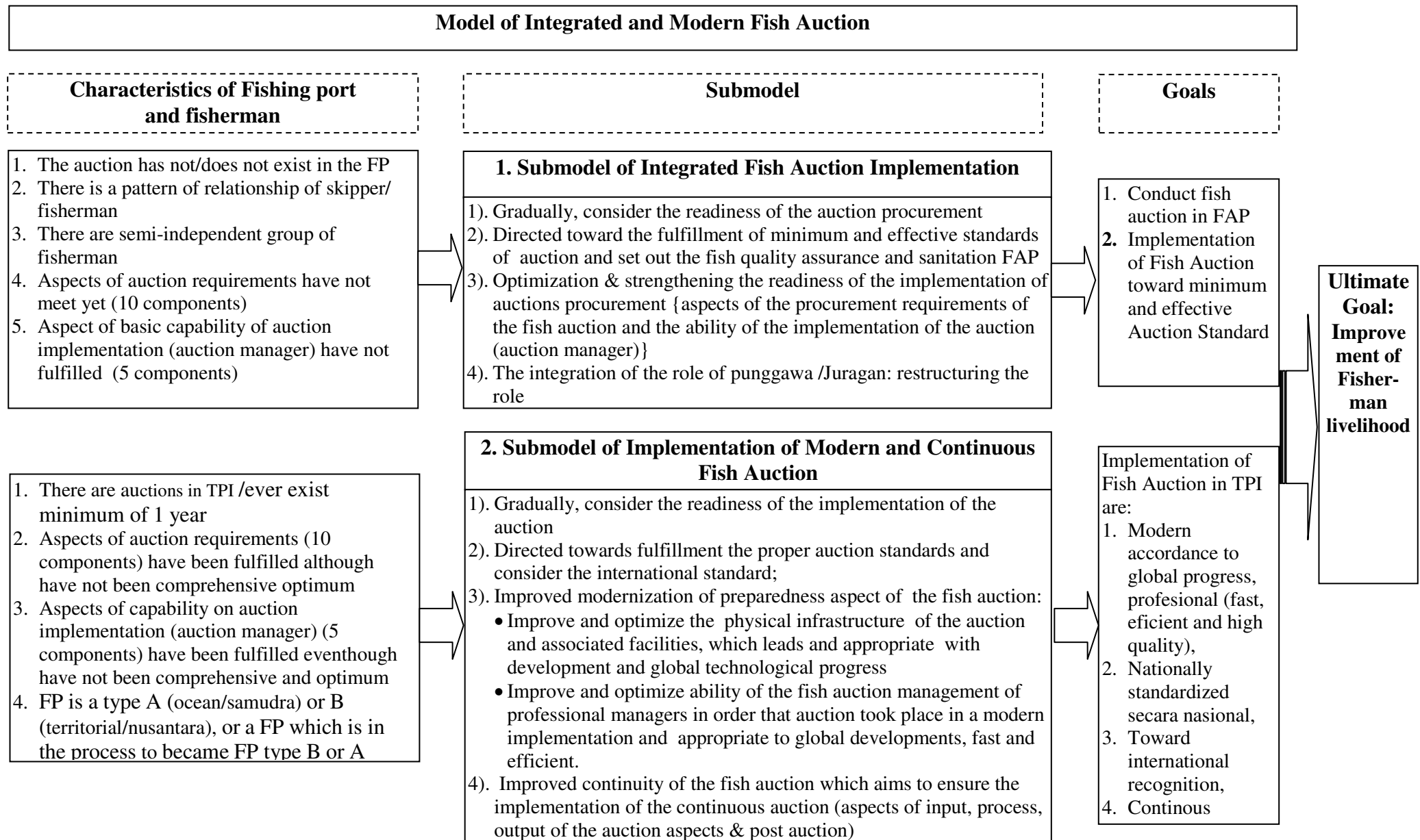
This is a model of gradual and targeted implementation of fish auction procurement in a FP/FLB with due respect to the readiness of the auction and the integration of the role of punggawa/skipper.

**Gradually**, is meant that the implementation of fish auction procurement held in stages by considering the readiness of the operation of auctions in the FAP. It required the making of Fish Auction Procurement Implementation Program at each FP/FLB which will hold the fish auction. This program is obtained from a master plan composing specific implementation of the fish auction procurement in the FP/FLB.



**Fig. 2.** Stages of Composing Optimum Fish Auction Model for Improving The Fisherman Livelihood

**Fig. 3. Model of Optimum Fish Auction: Model of Integrated and Modern Fish Auction**



**Directed**, is meant that the implemented program intended to fulfill the minimum and effective auction standards (standard of fish auction that puts the fish quality assurance and FAP sanitation), with the appropriate and planned phase of the implementation auction activities.

**Preparedness**, is meant optimization and strengthening the readiness of the implementation of the auction both from the procurement requirements aspects as well as the managers ability aspects of the fish auction implementation. Procurement aspects of the auction include 10 (ten) terms of readiness of the catch landed (Pane, 2010): basic facilities of the auction, the organization and manager of FAP, policy/ regulations, fisherman, fish buyers, the market (market absorptive capacity), infrastructure, roads and modes fish of transportation. Aspects of manager capacity of auction implementation includes 5 (five) components, namely the ability of the provision of facilities, provision of an auction system, organization, quality assurance and sanitation as well as the ability to create rules/policies that generated the process, since the catch landed, auctioned and distributed, take place quickly, efficiently and of good quality.

Fish auction management in the FAP in this model requires minimal capacity of human resources manager as described above, which can be regarded as semi-professional. Thus in the auction procurement model, it is required certain conditions to become a personnel of fish auction manager at FAP. According to Lubis *et al* (2010), the quality of human resources managers in this regard is as important as the government's aspirations criteria that indicated through the level of knowledge in managing the FP/FLB in order to function optimally. A FP/FLB even with complete facilities but without proper management, will make some existing facilities to be no or less functioning and ultimately damaged, or existing facilities are not maintained well. In addition to the quality manager, the quality of the actors in the FP/FLB such as fisherman, traders, processors were also assessed such as how to maintain existing facilities, including keeping it clean and how to utilize the existing facilities optimally. It is necessary to hold a counseling, training on how to utilize the facilities, maintaining sanitation facilities and the surrounding environment.

**The integration of the role of punggawa /skipper**, is referred to the absorption of the role of punggawa/skipper which beneficial to the fish auction process in FAP; through rearrangement of the role of punggawa/skipper benefits integrally in the process of the fish auction. In this case, the role of punggawa/skipper as the seller of the catch on a semi-independent groups of fisherman (fisherman are independent in the ownership of capture units but weak on their operations so that they have to borrow capital from punggawa/skipper), directed gradually to become buyers at the fish auction and at the same time as a fish seller after the auction is fully completed. Punggawa/skipper who also has a role as an owner of money or capital is also called the boss, may be deemed to have had the capital and experience that is powerful enough to support the transition of his role to become semi-independent groups of fisherman. Instead, on the fisherman of punggawa group/skipper (fisherman whose fishing units and their capital obtained from punggawa/skipper), the role as a seller of the catch in the FAP were not changed, only the sales process follow the fish auction system adopted in the FAP.

Group of independent fisherman (independent fisherman on the ownership of fishing capture units and operating capital) or independent fisherman of punggawa/skipper, strived for further enhanced the amount and quality of their independence, through various efforts to foster the empowerment of semi-independent groups of fisherman, such as capital supporting, coaching, and others.

Submodel-1 of auction above, applied to the FAP of FP/FLB that have characteristics of focused fishing port and fisherman as follows:

- (1). The auction has not/does not exist in the FAP of FP/FLB,
- (2). There is a punggawa /skipper who play dominant role, -by lending money to fisherman as well as being sellers of catches of semi-independent fisherman- due to the attachment of the fisherman on punggawa/skipper for borrowing money.
- (3). There are semi-independent groups of fisherman,
- (4). Aspects of the auction requirements has not been met yet.

- (5). Aspects of auction implementation capacity (auction manager) has not been met.

In general, many of the above characteristics found in type D of fishing port (Fish Landing Base/FLB) and type C (Coastal Fishing Port/CFP or PPP). Application of the submodel-1 auction above aims to hold the fish auction in a FAP FP/FLB, that is from the absence of any auction to the presence of it, and subsequently implement the fish auction to meet a minimum and effective auction standard.

The existence of the fish auction will provide a guarantee of competitive pricing and beneficial not only for fisherman but also for traders who buy fish in the FAP. The ultimate objective is the increase of fisherman revenue.

#### *The Modern and Continuous Auction Implementation Submodel*

This model is a gradual and directed implementation of fish auction considering the progress of modernization and the continuity of the auction.

**Gradually**, as the previous sub-1 model, is the implementation of the fish auction being held by considering the readiness of the operation of auctions in the FAP. In this case, it required the preparation of Implementation on Modern and Continuous Fish Auction Program at each FP that will hold this fish auction program. This program obtained from the making of a special masterplan of modern fish auction implementation at FP.

**Directed**, is referred to a program execution towards the fulfillment of auction standards which should consider the international standards (it is equipped with facilities that support operations in the FP; produce good quality of fish that acceptable by export markets; have a clean and hygiene environment), and in the precise and planned phase of auction implementation.

**Increasing of modernization on preparedness aspect of fish auction**, is to improve and optimize the physical infrastructure of the fish auction and related facilities, which leading and following the emergence and progress of global technology, improve and optimize the management ability of professional managers of fish auction, in order that the auction implementation takes

place on modern appropriate for global developments, fast, efficient and good quality.

Management of the fish auction at FAP in this model requires a qualified and professional human resources. Thus, it is required certain conditions, specialized and standardized to become the manager of the fish auction model. Implementation of high quality of fish auction model mean that it is automatically, besides able to give input and process on good quality, is also capable of providing a guaranteed output of auction i.e. fish obtained from auction in excellent quality (quality assurance, sanitation and pollution-free of auction environmental).

Modernization of the above aspects of readiness, should also be accompanied by efforts to raise management capability for the manager of fishing port to work professionally and efficiently and making a nationally standardized fishing port toward the international standard. In European Union countries such as France, Belgium and Germany, the activity of the fish auction is already using the facilities mechanization and computerization technology so that the auction became more efficient in terms of time and effort (Lubis, 2012).

**Improved continuity of the fish auction**, In the submodel -2, it is need to improve the continuity of the fish auction in various efforts aimed at ensuring the implementation of a continuous auction, both from the input or process aspects or the output of the auction and post auction aspects. Submodel-2 of auction above, applied to the FP that have focused characteristics of fishing port and fisherman as follows:

- a) Implementation of an auction in FAP now has been existed/still exists, or has existed minimum of 1 year;
- b) Conditions of the auction have been fulfilled, although not comprehensive and optimum;
- c) Ability to manage the auction has been fulfilled, although not comprehensive, and optimumly;
- d) Being a FP type A or B, or a FP type C in the process of becoming FP type B or A.

Application of the auction submodel-2 above aims for the implementation of the fish auction in the FAP of a fishing port, modern in accordance with the global progress, professional (fast, efficient), a nationally

standardized and towards international standards and carried out continuously.

Based on the results of the study, PPI Pontap Palopo City is **more prepared/ready for optimum auction model (submodel-1**, that is the Implementation of Integrated fish auction) because it has fulfilled its properties. PPI Pontap has never held the fish auction. There is a "Registrar" who play dominant role, related to the owner fisherman. Registrar in general, act as an intermediary of catches seller of the owner fisherman to the trader- buyer (Pagandeng/ Palele) besides doing the book keeping. There is also a money lender relations between fisherman with Registrar.

In the PPI Pontap there are also semi-independent fisherman groups, which represents owner-fisherman who own capturing unit (boats, engines and fishing gear) on their own, but often borrows money to the Registrar for capital needs of their fishing operations and or the needs of their family, but not much, except the fisherman worker/crew (ABK), because in general, fisherman-owners have money "savings" which is held/kept by the Registrar. The crew (the ship's men), pendega (a small fishing vessel owners, 2 miles reaches) is the most vulnerable group of poverty risks, hence it need to make a pattern that enables a guaranteed income obtained when crew do not go out to fishing.

Based on the ten components of the auction requirements, PPI Pontap already has the components of the landed catch, the basic infrastructure of the auction, the basic means of auction, manager of FAP, auction rules (regulations of provinces and cities), the landed catch seller (fisherman), fish buyers, road infrastructure and means of transportation of fish, although they remain inadequate and incomplete. The quality of the catch landed in the PPI Pontap very good, basic infrastructure of the auction, namely the building of FAP, the dock landing, anchoring pool and ample parking are spacious and in permanent condition but the FAP has not functioned for a fish market. Basic facilities of auction that is supply infrastructure such as ice and clean water has been exists and in good condition, except there are no fish basket, a pair of scales and other range of facilities of auctions. The number of fish traders (Pagandeng/Palele) in the PPI Pontap are many, both local and outside traders for example from the Toraja region.

The components of other requirements aspects such as organizational of the auction and policy/technical rules of the auction has not owned yet by PPI Pontap. Similarly, aspects of auction implementation capacity (auction manager) has not entirely fulfilled, that is the five components of auction implementation capability that include the provision of facilities, the provision of the auction system, the ability to organize the auction, the ability of quality assurance and sanitation as well as the ability to create rules/policies.

Submodel-2 of the Implementation of Modern and Continuous Auctions more can be applied to PPN Palabuhanratu. Implementation of auction at FAP of PPN Palabuhanratu, as has been stated before, ever existed since the port was operated until the auction halted in 2004, and since 2004 till now there is no longer fish auction. The main problem obtained is the weakness of Human Resources and capital of the FAP Manager at this port.

Aspects of the auction requirements on FAP of PPN Palabuhanratu have been met although have not been comprehensive and optimum. In general, it needs upgrading, strengthening and optimizing of the landed catch components (mainly the handling of fish quality), basic facilities of auction especially which-related to sanitation and hygiene issues), the organization and manager of FAP, fish sellers (fisherman-owner /capturing entrepreneur), the fish buyer (merchant buyers, processors buyers), market (market absorption capacity), road infrastructures and means of transportation of fish to the cities around.

Similarly, the ability of the auction implementation by the auction manager really needs to be improved, especially the quality of Human Resource Manager in FAP which requirements must be completely in line with national and global progress that can be implemented in a modern auction in accordance with national and global developments, fast, efficient and high quality. Gradually, the auction is applied on non-tuna (skipjack) catches first, and when the auction is achieved then the next can be applied to the catch of tuna so that the tuna fishing activity is increasingly growing at this port.

Both of the example port above would still require serious attention to sanitation of the port pool facilities as well as the FAP and its

facilities, for example, it has not been using clean fish basket. According to Pane, 2010 due to untapped of clean basket in the activities of the landing, marketing and the distribution setting up, it will have a negative impact on hygiene or sanitation in the landing dock floor, FAP and the surrounding environment which is one of the international requirements. It would still need a lot of revamping of the management in terms of sanitary control in the fishing port which certainly must be the task of central government and local governments as the managers.

## CONCLUSIONS

Based on the characteristics of optimum fish auction model above, two FP/FLB studies can be grouped according to their both submodel as follows:

- Submodel-1 Procurement of Integrated Fish Auction : PPI Pontap
- Submodel-2 Implementation of Modern and Continuous Fish Auction : PPN Palabuhanratu

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