

Institutional model of fish auction refunctionalization in Indonesian fishing ports

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Abstract. Non-functioning of fish auction in the majority of Indonesian fishing ports is one of the institutional weaknesses in the fish auction management. Obviously, fish auction is a sales system that should be applied in the fishing port so that fishermen and traders can obtain the good price for their products. There are as many as 90% of the 816 fishing ports which do not implement the fish auction and resulted in low prices and implicit low income for fishermen. This research aims to formulate institutional models that support the implementation of optimal fish auction. Research was conducted by survey method; a total of 176 respondents have been studied including fishermen, traders, brokers, managers of fishing port and managers of fish auctions (TPI). Problem solving is done based on fishing port aspect and socio-economic-culture aspects, using RRA and PRA method. This research has resulted a formulation of institutional model supporting implementation of optimal fish auction namely "Model of Functional Institution of Fish Auction" which require implementation of the three basic functions of fish auction i.e.: correctly, responsibly and sustainably. In other words, the implementation of auction mechanism correctly and corresponding to regulations; fast and fair transaction of auction between fishermen and buyer, and ensuring fish being auctioned are in exemplary quality and fine price. It is also the implementation of management functions, and other functions indirectly.

Key Words: fish trading, fishermen, fish auction management, capitalization.

Introduction. Auction can be defined as a system for allocating some asset or rights to a buyer and/or seller based on price competition between the buyers and/or sellers (Krishna 2010). Klemperer (1999) points out the importance of auctions on the basis of three points. First, a huge amount of economic transactions are conducted through them. Second, auctions provide a natural testing ground for economic theory – especially game theory with incomplete information. Third, auction theory has helped in developing insights into other methods of price formation like posted prices and negotiations.

Fishing port (FP) is one of important subsystem in capture fisheries system which needs to be used, organized and managed carefully at its best. Fish auction is the most important main activity in FP which needs to be managed optimally with the result that fishermen and buyers obtain a fair price. In order to create equitable marketing practices for both sellers and buyers, a fair pricing system is needed. Many of auction theories focused on different auction styles, such as ascending bidding strategies (i.e., English auctions) and descending bidding styles (i.e., Dutch auctions) (Klemperer 1999).

Most of fishing ports in Indonesia, for about 80% of it, have no longer implemented fish auction which resulted on the minimum fishermen income and eventually made them encountering hardship to attain financial capital to go fishing (Lubis et al 2005). The absence of many fish auction implementation resulted in the fall off fish price and declining of fish quality in FP.

The previous research in the period of 2009-2010 on model of fish auction optimization in fishing ports in order to increase in national fishermen income (Lubis & Pane 2012) has been formulated two models of optimum auction: Model of Integrated Fish

Procurement in formulating two models of optimum auction, namely: Model of Integrated Fish Auction Procurement and Model of Continuous and Modern Fish Auction. In order to apply both of the models, it needs institution to support optimum implementation of fish auction model according to the given criteria.

In Indonesia, various research revealed that with the absence of fish auction, many fishermen became dependent to non-formal institution such as 'broker'/middlemen to borrow financial capital in an easily and fast way. It constantly caused fishermen entangled to 'tengkulak/broker' without knowing for how long the debt can be repaid. Those fishermen commonly have no access to banks to borrow financial capital because of the bank requirement adversity. The loss is that the fishermen forced to sell their catch to the broker. Based on the results of previous research in the period of 2009-2010 (Lubis & Pane 2012) about model of fish auction optimization in fishing ports in order to increase in national fishermen income, the average of fishermen loss of fishing catches in Palabuhanratu, Nusantara fishing port is about Rp 2.000,00 – Rp 5.000,00 (0.16-0.41 U\$) per kilograms, or the broker has bought the fish at the price lower than the buyer's price in fishing port. Such was the case of gillnet fishermen, the loss is about Rp 2.000,00 - Rp 4.000,00 (0.16 U\$ - 0.33 U\$) per kilogram so that the total loss could strike to Rp 250.000,00 - Rp 1.000.000,00 (20.83 - 83.33 U\$) per trip. The payment of fish sale was not paid in cash by the broker or delayed for about 3 days until the fish was resold by the broker (Lubis et al 2012).

The fishermen who sell their catches directly in FP through auction will get cash payment so that they do not face impediment of financial capital for the next fishing. The fish auction in all Indonesian fishing port have been regulated by Regional Government however, many fishing ports has delegated the management of the fish auction to the cooperative. Until now, there are still many problems so that the fish auction was not implemented in most Indonesian fishing ports.

This research aimed to formulate an institutional model of fish auction refunctionalization in Indonesian FPs based on fishermen socio-economic characteristics and institutional problems of fish auction.

Material and Method. The research was conducted from March to May 2015, using survey method. The studied aspects comprised main points; namely institutional aspect, port management, fishermen socio-culture and additional aspect as the port's bio-technical aspect.

Institutional aspect of fish auction in FP included formal and non-formal institutions, quality and quantity of human resources, policies of central and regional government supporting it; capital of institution, institutional activities, the existence and function of related local institutions, socio-cultural aspects of the community around FP.

Management aspect studied included management of fish auction in FP and presented supporting facilities. Socio-cultural aspect studied covered existing and potential condition of socio-culture of fishermen community that organize catch landing activity and their interaction in FP/fish landing base. Socio-economic aspect studied included marketing of catches and the socio-economic institutions assessment. An Additional aspect was studied namely the bio-technical aspect of sanitation and catch quality handling.

This research took samples from both the FPs which still organize fish auction and from others which no longer implement it. The information for Java Island was obtained from the research of Lubis et al (2005). As comparison in discussion it was used fish auction institutions in FPs outside of Java based on result of previous studies in the period of 2009-2010 (Lubis & Pane 2012) about model of fish auction optimization in fishing ports in order to increase in national fishermen income, and fish auction institutions in French FPs.

Samples of FPs and Fish Landing Base (FLB) were taken by purposive sampling. Overall there are 4 locations of FP samples representing 4 administrative types (oceanic, territorial, coastal and fish landing base/FLB) as listed below:

- (1) PP Samudera Nizam Zachman - Jakarta (Type A);
- (2) PP Nusantara Palabuhanratu - Sukabumi Regency - West Java (Type B);
- (3) PP Bajomulyo - Pati Regency - Central Java (Type C);
- (4) Fish Landing Base FLB/FLB Karongsong – Indramayu Regency (Type D).

In order to achieve research objective to promote FP role, especially in fish auction, it

was used participatory research method, namely Rural Rapid Appraisal (RRA) method and Participatory Rural Appraisal (PRA) method on each FP/FLB sample. RRA method was used in the first stage to explore the general condition of the fishing ports and the social system that evolved in the fishing ports area and surrounding areas. On the next step, PRA method used to find out more about community participatory in entire activities.

Other methods used for data collection were in-depth interviews, focused group discussions of port users (fishermen, traders, fish processors) and port leaders who organize fish auctions.

The data has been obtained based on the identification of the problem on the institutional fish auction, and then the data were analyzed qualitative descriptively. Furthermore, based on the results of this research will be formulated the concept of institutional model of fish auction in the fishing ports in accordance with the characteristics of the fishermen.

Results and Discussion

Problem of fish auction implementation on FPs. The results of this research indicate that there are various problems so that fish auctions are not implemented in four examples of fishing ports. In essence, the problem of non-functioning of the fish auction is due to the incapability of institutions in managing the fish auctions, a lack of supervision and limited fisherman's capital so that fishermen have to borrow capital from an intermediate person (middlemen). Non-functioning of the fish auction has an impact on a lot of things, namely inaccuracy of fish production data, low prices of fish received by fishermen, fishermen dependence on middlemen to obtain fishing capital, etc.

Profile of the fishermen. The profile of fishermen in Indonesia is much different from the developed countries such as Japan and European countries in general. Indonesian fishermen lives in coastal communities usually in rural areas, and this has many specific characteristics. Concerning education, they are usually primary school graduates. Particularly it occurred on labor fishermen while the owner fishermen usually have relatively higher level of education. The low levels of education on fishermen labor is caused by the lack of financial capability and limited access of education in coastal regions. As many as 40% of Indonesian fishermen using boats with outboard motors and 32% using simple boats and oars.

Japan fisherman profile: generally, a small fishermen in Japan owned small motor boat (<5 GT) individually and running their own capture activities. Japanese fishermen usually are middle and upper school graduates and no longer oriented on subsistence fisheries. They have headed on pursuing surplus catches, so they can be categorized as small scale commercial fisher. Japanese fishermen are also keen on working independently without the help of labor, unlike small fishermen in Indonesia that employ workers using revenue sharing scheme. It is possibly because small scale business of fisheries in Japan has already been a capital extensive business and use a relatively advance capture technology (Satria 2001). Similarly, fishermen in France, has high capability because to become fishermen they must had been trained and certified (Lubis 2012).

Training to access navigation job and fishing techniques require an increasingly specific qualification. The certificate of professional competence is prepared in two years after the 3rd class in maritime vocational schools. They place a large part in practical training (12 to 14 weeks of training over 2 years). This is necessary because the fisherman participates in all the activities needed on a fishing boat. Deck cleaning, implementation and repair of fishing gear, participation in the conduct of the ship (fourth drive), catching and preparing fish for sale once returned to port (gutting, cleaning, compartmentalization, icing), working both autonomous and in team, which requires them to be passionate about the sea and be in excellent physical condition.

In fishermen communities, division of work is based on gender. Jobs required great strength are performed by men such as fishermen, fish traders and porters, while women

tend to work as laborers on the business or in fish processing industry located near the fishermen's settlement. Satria (2001) stated that most women or wives of fishermen contribute in fish processing and fish marketing activities.

Fisherman communities tend to have consumptive lifestyle character, especially during fishing season since they earn a lot of revenue. By contrast, during bad season their debts increase more so that they highly depend on the lender. The lending from middleman to small fishermen is a bond of trust.

Mobility of fishermen from one region to another is very high. The mobility is primarily because of economic incentives in searching of more profitable fishing area or fish marketing area. Such as fishermen of East Lampung, many of them also docked and sold their catch to several FPs existed in North Coast of West Java as well as in Blanakan, Eretan and Karangsong. They did it because of the closeness areas to fishing ground and the quite competitive fish prices in the port. The competitive price of fish is usually caused by the fish sale implemented through an auction as it run on those ports.

One characteristic generally prevailed to fishermen in Indonesia is that they still operate a small-scale fishing unit so that their fishing operation areas are not far away or about 2-5 miles from the fishing base, resulted on their small fishing catch. These conditions set them to always have difficulty on improving income and welfare of their families.

Institutional model of fish auction. Institutional model of fish auction management in the FP in various countries especially in the European Union in general refers more to the institutional management of FPs. This is because the fish auction management agency is an agency similar to the port management institution; such as fishing port in France (Boulogne-sur-Mer).

The types of institutional management of the FP are:

- 1) The institutional model of FP management by Chamber of Commerce and Industry (as "Kadin" in Indonesia). In France, this institution also manages fish auction as fishing port of Boulogne-sur-Mer;
- 2) The institutional model of fishing ports management by the Employers' Group Fishing/Société Mixte. This institution also manages fish auction, as well as FP of Lorient-France;
- 3) The institutional model of FPs management by the local government. These institutions also manage the auction of fish as well as FPs in Belgium, Indonesia (Lubis 1989).
- 4) The institutional model of FPs management by the central government/local government but the management of fish auction conducted by the cooperative. It is similar to fish auction management take place in Indonesia's FPs.

Description of institutional fish auction in Indonesian FPs. Research results shows that there are two aspects associated with institutional fish auction in Indonesia, as the results of previous studies showed (Lubis & Pane 2012).

1) There are institutional fish auction but they did not organize the auction (existed but not performed). These institutions only take retribution although the auction is not taken place, as that is implemented by institutions of fish auction in FP of Nizam Zachman and fishing port of Palabuhanratu. Institutional management of fish auction in FP of Jakarta is the Regional Technical Implementation Unit (UPTD) of FP and fish landing base of Area Management Muara Angke-Jakarta, while in FP of Palabuhanratu since 2004 is switched from Cooperative/ KUD Mina to the Department of Marine Affairs and Fisheries Sukabumi Region. Those fishing ports no longer implement fish auction, although previously there are auctions for certain kind of fish. For example in PPS Nizam Zachman Jakarta, previously there was specific auction for tuna fish after it landed in a specific tuna quay (tuna landing ship center) which went directly to processing field adjacent to the quay - owned by tuna fishing firms, and then immediately exported. The reason for no longer implement tuna fish auction, either by the fishing company or by the FP management is because of concern about damaging the quality of tuna fish due to the length of fish auction process and limited handling facilities. The non-tuna fishes are marketed directly without auction to surrounding area and outside of Jakarta. The next example is the fishing port of Palabuhanratu. From beginning of operations in February 18, 1993, the fish auction has taken place for many

years but then stopped in 2004 about two years after the fish auction management handed over to KUD Sinar Mandiri Mina Seafood (Lubis et al 1999). The important factor causing the termination of the fish auction until now, according to Pane (2011) is the weakness of the human resources capability of the fish auction management. The same aspect was observed in all FPs studied. The results also showed that quite a lot of fishermen owners in fishing port of Palabuhanratu (fishermen using bagan and payang fishing gear), sell their fish directly without auction to buyers in the auction hall or at the quay. However, basically the fishermen and the buyer want the implementation of the fish auction because in terms of fish price it is considered more profitable.

2) There are fish auction institutions and the fish auction is implemented. Institution of fish auction has functioned reasonably well, but many of the implementations are still not optimal. For example, FLB Karangsong- Indramayu Regency managed by the Cooperative of Marine Fisheries, the fish auction is running well. FLB Bajomulyo managed by the Department of Marine Affairs and Fisheries - Pati Regency, the auction also functioning well. But in both institutional FPs, the auction has not implemented three - basic functions of the fish auction yet, as it has been stated previously, namely: (1) - Ensuring that the auction mechanism is correct and in accordance with current regulations, (2) - Guaranteeing the transactions of auction are fast and fair for fishermen seller and the buyer, (3) - Ensuring the fish are auctioned correctly in terms of the type; the number; the size; the quality and the price or in accordance with the five components of The Strength of Catch in the fishing port (Pane 2010), so the buyer gets the assurance of fish purchased. Institutional management of the fish auction aside from an organizer of the auction, also guarantees the money from the fish sale can be received in cash on that day.

Institutions which organize or do not organize the fish auction, the participants involved in the auction (fisherman/fisheries entrepreneur, fish traders and fish processors) apparently have not acquired the assuredness of three - basic functions of the fish auction yet. The management of the auction and distribution of fish associated with the roles or the functions of institutional fish auction are:

(1) In marketing without auction: Institutional fish auctions do not play any role in the fish auction or collect retribution only.

(2) In marketing by auction: the fish auction institution play a role as an organizer of the fish auction and take retribution either from the seller and the buyer.

(3) In a marketing-distribution of fish: institution which implements or do not implements the fish auction, generally has no role or minimum role on fish handling. Institutions that organized marketing of fish by auction should be able to provide handling facilities when the fish are still in the auction hall so that the quality of fish that will be distributed to distribution area/hinterland is maintained. Similarly, managers should allow only consumable-fish to be landed at the FP and participate in the auction, while fish quality which cannot be consumed are not allowed to be landed and to be auctioned. It is what has been done in the FPs in France (Lubis 2012). Thus the fishermen will carry out a good handling on fish catch during the ship so that its quality is always maintained.

Institutions that do not implement the auction usually do not provide facilities or provide limited auction facilities (such as scales, fish baskets, clean water, fork lifts, cool room). Institution that implements the auction generally provides facilities for the auction, but the type and the number were limited. In France, fish auction facilities have been well developed. Electronic systems have played a key role in primary fish markets. The computerization of trading rooms started in the mid of 1980s while the connectedness through the intranet or internet systems first started in the mid-1990s and then spread more actively in France since 2007 (Guillotreau & Jiménez-Toribio 2011). Besides that there are also available strong fish basket made of fiber and washing machine to wash the basket. The washing machine facility can wash 600 basket/hour (Lubis 2012). It is interesting to note that fishermen express more satisfaction than fish traders on the market installation. This fact is observed in several cases of processing trade over-the-counter in the electronic auction market, where producers come as winners thanks largely to the rebalancing of the informational relationship between suppliers and consumers (Garcia-Parpet 1986;

Guillotreau & Jiménez-Toribio 2011). It is conceivable that the increase of transparency in the market is primarily market participants whose work is not exclusively trade (producers/fishermen or end consumers) and does not have such an advantage for merchants, meanwhile, almost to opacity interest in so far as their greater availability in the market gives them an informational advantage (Debril 2000; Tiotsop et al 2014).

The institutional model of fish auction refunctionalization in Indonesian FP. The institutional model of fish auction in the fishing port studies which have been compiled is the result of analysis on the issue and the main characterization of institutional fish auction, called "The institutional model of fish auction refunctionalization in Indonesia fishing port". Its main characteristic is the ineffectiveness of the basic functions existed at institutional fish auction due to limited knowledge of the seller and the buyer; the lack of managers capability, and the limitations of fish auction facilities resulted the ineffectiveness of the three-basic functions of fish auction. The Institutional Model of Functional fish auction is presented in Figure 1.

The apt implementation of fish auction is the implementation of the three-basic functions of fish auction, conducted in accordance with rules made by the institution of fish auction and associated institutions. Continuous implementation is the implementation of the three-basic functions of fish auction that run continuously by institutional fish auction so the buyers and sellers have higher assuredness and confidence to these institutions.

Functions of management carried out are at least "planning, organizing, directing and evaluating" of human resources of auction institution to achieve the goals and the objectives of the institution efficiently and effectively. Effectively means the goals and the objectives that achieved is pinpoint to predetermined plan, while efficiently means the goals and the objectives that achieved is pertinent to the plan (in terms of the conformity of the program, time and fund used) and generate the target and or additional benefits. Thus, institutions that manage fish auctions are supposed to have expertise (education), skill and management experiences especially in the field of FP and capture fisheries.

The fish auction system used in Indonesian fishing ports is generally British type (English type auction), i.e. open auction with ascending system. The participant who submits the highest price will be designated as the winner. This auction system is intended for all types of fish. Different things happen in Norway, where there are two fish auctions; first, the auction for pelagic fish for consumption run by the Norwegian Fishermen's Sales Organization for Pelagic Fish or called the Pelagic auction. The second auction is so-called the Triple auction, mainly concentrated on demersal species, where three different fish sales organizations organize co-operatively. This auction is with ascending system. (Jakobsen & Aarset 2010)

Overview of direct and indirect function of institutional fish auction is presented in Figure 2.

Besides the achievement of the functions of the fish auction optimally from the institutional model of the auction above, the institutional fish auction can also perform functions not directly or extras roles such as is implied in Article 3 in Regulation of the Minister of Fisheries and Marine Affairs number 08 year 2012 on FP, among others: - data collection catches in TPI; providing information to the users of the port; help control the environment in the fishing port and its surroundings.

Implementation of functions IFA above, the purpose of this institutional model can be achieved, so that:

- 1) IFA functioning again: do not implement the fish auction became implemented fish auction, and,
- 2) The optimal implementation of the three basic functions of the fish auction by IFA and the implementation of other functions of the IFA both directly or indirectly function.

Achieving both of these objectives, it will have an impact on increasing revenues for sellers and merchants, consumers get prime quality of fish, increasing the cleanliness of the environment and enhance the image of the fishing port and compete in a globalization. Furthermore, through the implementation of Institutional Functional Model of the fish auction in all FPs of Indonesia is expected to realize final goal of the model which is to achieve improvement of living standard Indonesian fishermen.

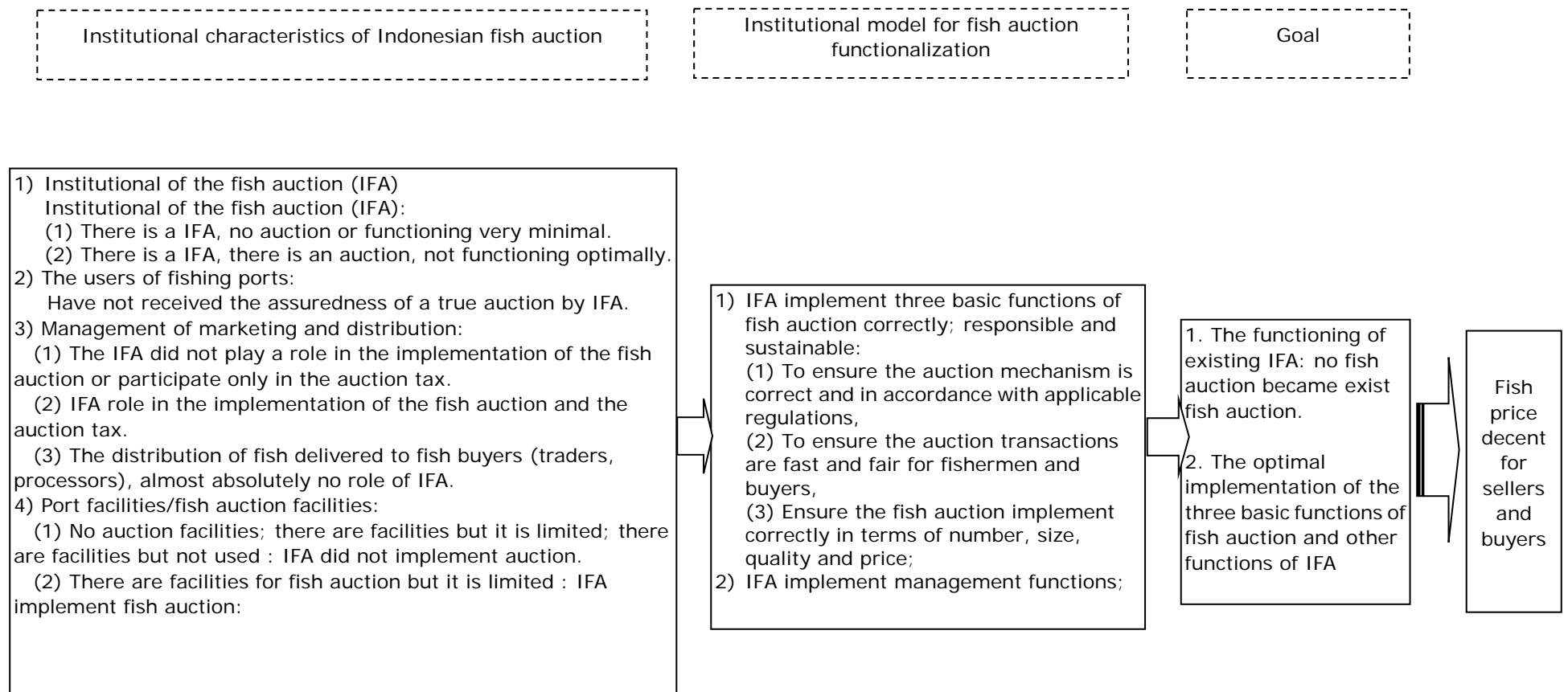


Figure 1. Institutional model of fish auction functionalization.

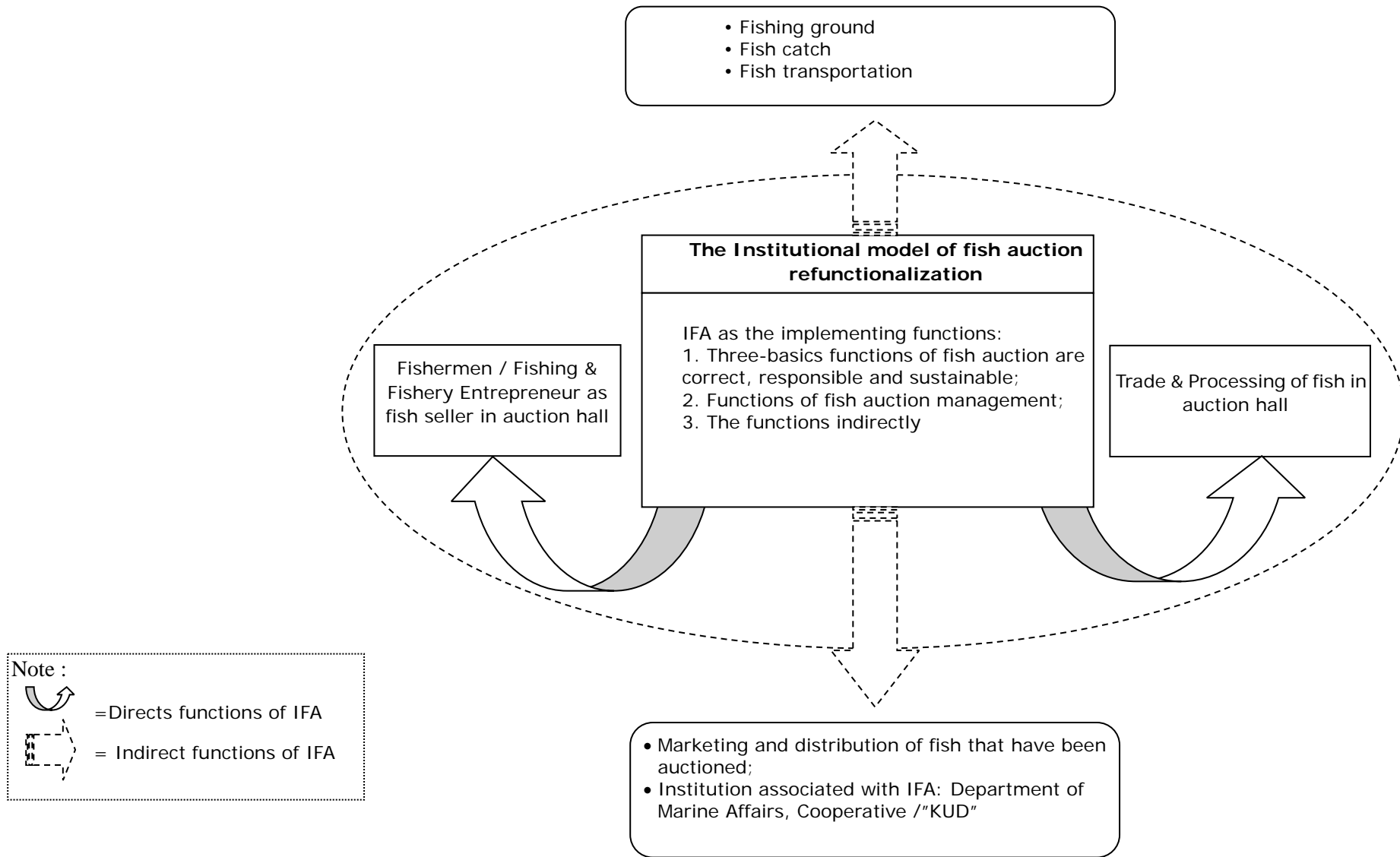


Figure 2. Direct and indirect functions of "Institutional model of fish auction refunctionalization in Indonesian fishing ports".

Conclusions. Conclusions for the fish auction refunctionalization:

- (1) Institution of fish auction (IFA) is required to implement Three Basic Functions of fish auction: optimally, responsibly and sustainably; carry out functions of management and also the indirectly functions.
- (2) Institutional model is expected to functionalize the fish auction through the implementation of Three-Basic Functions of fish auction and other functions.
- (3) Application of "The institutional model of fish auction refunctionalization " in all of the fishing port studies in particular and Indonesia in general is to realize the true marketing of fish so the fishermen are not be aggrieved.

Suggestions:

- 1) There is need to increase human resources competitiveness of IFA and FPs user through education and skills training.
- 2) It is necessarily to complete the facilities at the FPs to meet the needs of the fish auction as well as equipment for fish landing and auction with technology adaptable to work speed and the ability to maintain the quality of fish.

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