Enhanced fisher job satisfaction and loyalty for sustainable fisheries development in Bengkulu, Indonesia

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Abstract. The increasing of fisher job satisfaction and loyalty is essential factor in fisheries development in Bengkulu, Indonesia. High risk because of climate change badly needs good fishing management and properly government intervention. The purpose of this paper is to determine the key factors of government policy of sustainable livelihood, on which government should focus. An Interpretive Structural Model (ISM) has been employed to the model the implementation factors of enhancing fishers job satisfaction and loyalty as an important prerequisite in sustainable development. There are two essential goal that have high driving force and independent namely: (1) An increasing of the fisher income and (2) the sustainability of fishing business. Then, political Support for Policy Making and Improved fishermen’s economic performance are two element needs must be focus by government of Indonesia in increasing fisher job satisfaction and loyalty. The handicap to do so are a partnership that benefits to all parties and the low quality of fisheries human resources. Finally, there are two government institutions that have essential role are central and provincial government.

Keywords: fisher; interpretive structural model; loyalty; satisfaction; sustainable fisheries

1. Introduction

Bengkulu Province with 525 km coastline has great fishery potential. However, fishery production of Bengkulu Province recently has just reached 50,872 tons or is still very far from its sustainable production [1,2]. The magnitude of fishery potential is also not reflected by the condition of the fishermen that almost half of them are below the poverty line [2]. This problem is caused by the fact that most of the existing fishing boat are less than 5 Gross Tonne (GT), so they only operate in waters up to 12 miles from the shoreline [3].

Meanwhile, badly climate change due to global warming in the last two decades has become a problem for the fishermen community. In Indonesia 53 percent of natural disasters is related to changes in the global environment and climate such as: flood, drought and hurricanes [4]. Then the worst impacts of climate change are rising sea levels resulting in damage to marine ecosystems, increasing the frequency and intensity of floods, changing ocean currents, sea water intrusion, reduced land or loss of small islands and threats to socio-economic activities of coastal communities, [4,5].

Almost all rural communities in Indonesia, especially fishermen, live in a rural atmosphere with full of kinship that became the life-sustaining capital [6]. This capital is better known as social capital [6,7]. The social capital becomes a booster for the fishing community to survive and continue to work in the field of fishing [8,9]. Besides, strong social capital can play a role for individuals to gain access in society such as access to resources and information [10]. Meanwhile, Oriana et al. [11] said that social
capital plays an important role in the adoption of new technologies especially through the network of neighbours and families.

In addition, the Indonesian government is always trying to develop the fishing sector with various policies. This policy aims to increase the export of fisheries sector, create employment and improve the fishermen welfare. These policies include; increased investment incentives, guaranteed marine safety, and improved coordination and simplification of existing regulations [12]. The policies in capture fisheries include; conflict solutions, rules and regulations, opportunities for participation, and training and guidance, development of facilities and infrastructure such as fishing ports and fishing grounds [13].

The purpose of this paper is to determine the key factors of government policy which increasing fishermen job satisfaction and loyalty for fisher sustainable livelihood. Currently Fishery policy maker face many difficulties in implementing. There are too many objectives in fisheries development program policy. So, it is not easy to make single priority that make fishers could enjoy in their business. There are too much factors required and obstacles in pursuing fisher job satisfaction and loyalty. On the other hand, there are too many institutions get involve in Fisheries development. It is lag of coordination and order as a result it led to bureaucracy inertia. It is hoping this research could resolve the problem and could make fisher satisfaction and loyal in their fishing business.

2. Research methods

2.1. Research sites

In-depth interviews were conducted to seven fishermen group leaders as key informants. Those key informatises are selected purposely at seven fishing fisheries centres in Bengkulu Province namely; Bintuhan Beach, Sekunyit, Pasar Bawah Manna, Pulai Bay, Malabro, Pondok Kelapa and Pasar Bantal. Then Focus Group Discussion (FGD) [14] with experts which was held to find out goal, need, obstacle, and institution increase job fisher satisfaction and loyalty. At this FGD attended by 30 experts include academic and practitioners. Over roll all this research was conducted in April to November 2018.

2.2. Data analysis

Interpretive Structural Modelling (ISM) [15-17] is used to determine the effective fisheries policy strategy in increasing job satisfaction and loyalty of fishermen, especially in Bengkulu Province. ISM model in this study is able to map hierarchy four main variables for increasing fisher job satisfaction and loyalty. Those are Goal variable, Need variable, Obstacle variable and Institutions. Each variable element is elaborated from depth interview to seven fishermen leaders. Then those is discussed in FGD. Finally, experts are asked to make opinion which entails the pair wise relation of the variable elements

The results of the analysis are grouped into elements of the strategy in four quadrants, namely autonomous, linkage, dependent and independent. Furthermore, Atri et al. [15] said that the elements in the autonomous quadrant have a low driving power and level of dependency, the elements in the dependent quadrant show low driving power and high dependency, the elements in the linkage quadrant show high driving power and high dependency, and finally elements in the independent quadrant mean high driving power and a low level of dependency [15].

3. Results

3.1. Goal in pursuing increasing fisher job satisfaction and loyalty

The results of the FGD found out that there were ten strategic fisheries development objectives related to fisher job satisfaction and loyalty. It can be seen in table 1.

The results of the Interpretative Structural Modelling (ISM) as shown in figure 1. From the figure, it can be seen that the Goal elements are spread out in only three quadrants, namely the dependent quadrant there are three elements (6, 10, 2), the linkage quadrant there are four elements (3, 4, 5, 7, 8) and in the Independent quadrant there are two elements (1, 9), whereas in the autonomous quadrant no objective element exists.
Table 1. Ten goal elements in increasing fisher satisfaction and loyalties.

| No | Elements                                                         |
|----|------------------------------------------------------------------|
| 1  | Increasing of Fishers income                                     |
| 2  | Increasing of Regional Gov. Revenue                              |
| 3  | Employment                                                       |
| 4  | Job creation                                                     |
| 5  | Poverty alleviation                                              |
| 6  | Economic inequality                                              |
| 7  | Increased economic growth and fishing business                    |
| 8  | Increased competitiveness of fishery commodities                  |
| 9  | Fishing business sustainability                                   |
| 10 | Fisher community development                                     |

Figure 1. Structure and graph goal elements.

The results of the analysis show that policies to increase job satisfaction and fisherman loyalty must focus on two very important goal elements, namely increasing the income of fishing communities and the sustainability of the fisheries business. The two elements of the goal have the highest driving force and the lowest level of dependency. Thus, these two elements will encourage the creation of labour absorption, job creation, poverty alleviation, increase economic growth and fishing business, increase the competitiveness of fishery commodities. Then the elements in the linkage quadrant will encourage the reduction of regional development inequality, community empowerment and increased regional income. That found out of two important elements in increasing job satisfaction and loyalty of fishermen, namely increasing income and the sustainability of the fishing business are very much in line with the two missions of the Indonesian Ministry of Marine Affairs and Fisheries, first, welfare in this case is shown by income and second, sustainability which in this case is the same as the sustainability of the fishing business [18].

3.2. Need elements for increasing job satisfaction and loyalty

From in-depth interviews on seven chairman of fishing group centres in Bengkulu Province then follow by discussion with a group of experts we found out there are 14 elements of urgent needs. Those elements were identified in increasing job satisfaction and fisherman loyalty as shown in table 2.

Figure 2 show that the elements of needs are spread over three quadrants, namely the dependent quadrant where there is one element (9), the linkage quadrant where there are seven elements (1, 3, 7,
8, 10, 12, 13) and the Independent quadrant where there are six elements (6, 14, 2, 5, 11, 4), whereas there is no single element of necessity that is in the autonomous quadrant.

Based on the ISM analysis, the need for Political Support in Policy Making must be the main concern, improving the performance of fishermen, then three elements that have the same position, namely the availability of fishery production facilities (fishing gear, ships and machines, fuel), Skilled fisheries human resources and open market access with broad marketing, then lastly the establishment of fishermen network institutions is the next order of importance.

Table 2. Fourteen need elements to increasing job satisfaction and loyalty.

| No | Need Elements                                      |
|----|---------------------------------------------------|
| 1  | Availability of Functional and Effective Infrastructure, |
| 2  | Availability of fishery production facilities (fishing gear, boats and engines, fuel) |
| 3  | The development of the fishing industry            |
| 4  | Establishment of fishermen network institutions    |
| 5  | Skilled fisheries human resources                  |
| 6  | Political Support for Policy Making                |
| 7  | Capital and loan facilities                        |
| 8  | Adaptive management capacity,                      |
| 9  | Meeting the needs of local fish                    |
| 10 | The existence of competent fisheries extension / technology transfer institutions, |
| 11 | The opening of broad market access and marketing   |
| 12 | Active fishermen / private institutions and networks, |
| 13 | Growing active participation of related parties    |
| 14 | Improved fishermen's economic performance          |

Figure 2. Structure and graph of need elements.

In the linkage quadrant, there are seven elements; the availability of functional and effective infrastructure, the development of the fisheries industry, capital and loan facilities, adaptive management capacity, the existence of competent fisheries extension agencies / technology transfer, the growing active participation of related parties. While the need for local fish needs is the least important element even though it is still in the system because it is in the dependent quadrant.

The finding of the importance of facilities, especially fuel to increase job satisfaction and fisherman loyalty, [19] while other fishing means such as boats, engines and fishing gear are in line with the
research of [20] as well as [21]. They said the essence of the fishing fleet in capture fisheries production. While the main factor or element needed is political support [22] while the importance of access to marketing is also mentioned [23].

3.3. Obstacle elements in achieving job satisfaction and loyalty of fishermen

Depth interview with key informants and discuss with experts have found out that there 14 obstacle elements in pursuing job satisfaction and loyalty in Bengkulu. It can be seen on table 3.

| No | Obstacle Elements                                                                 |
|----|-----------------------------------------------------------------------------------|
| 1  | Limited infrastructure such as (fish auction, fishing port and telecommunication) |
| 2  | Business capital is limited and credit is difficult to obtain                     |
| 3  | The low quality of fisheries human resources                                      |
| 4  | Productivity and efficiency are still low                                         |
| 5  | The quality of fishery products is still low to support the fishing industry       |
| 6  | There has not been a partnership that benefits to all parties                      |
| 8  | Limited financial support for the development of fishing areas                     |
| 9  | Fluctuating selling prices for fishery products                                   |
| 10 | Lack of cooperation between stakeholders                                           |
| 11 | Lack of active participation of cooperatives in advancing small and medium fisheries industries |
| 12 | Poor access to marketing                                                          |
| 13 | Low access to fisheries technology                                                 |
| 14 | Fishermen's income is limited and fluctuating                                     |

Figure 3 shows that the constraint elements are also spread over three quadrants. On the dependent quadrant, there is one element (5), in the linkage quadrant of nine elements (1, 2, 4, 7, 8, 9, 10, 12, 14) and in the Independent quadrant (6, 3, 11, 12), while there are no constraint elements that are in the autonomous quadrant.

Base on the ISM analysis it can be seen that the main obstacle that must be concern for increasing job satisfaction and fishermen's loyalty is the lack of a partnership that benefits all parties, then the low quality of fisheries human resources, the lack of active cooperative participation in advancing small and medium-scale fishing industry and lack of marketing access.

The main obstacle in increasing job satisfaction and loyalty of fishermen in this study is the absence of an equally beneficial partnership, this factor is a new finding in previous research, while the second
obstacle regarding the low quality of human resources has been conveyed [21, 24] in terms of fishermen's capital.

3.4. Institutional elements involved in increasing job satisfaction and loyalty of fishermen
The results of in-depth interviews from groups at seven fishing fisheries centres in Bengkulu Province and discussions with expert found out that there are 12 elements of institutions that required get involved in increasing job satisfaction and loyalty of fishermen as shown in table 4.

The results of the Interpretative Structural Modelling (ISM) analysis can be seen in figure 4. That figure shows that the elements of the institution are also scattered in three quadrants, namely the dependent quadrant with one element (10), the seven-element circle quadrant (5, 6, 7, 8, 9, 11, 12) and the quadrant Independent (1, 2, 3, 4), whereas there are no institutional elements that are in the autonomous quadrant.

Table 4. Two left institutional elements involved in increasing job satisfaction and loyalty of fishermen.

| No | Institutional Elements                      |
|----|--------------------------------------------|
| 1. | Central government                          |
| 2. | Provincial Government                       |
| 3. | Autonomous regional government              |
| 4. | Related technical agencies                  |
| 5. | Bank                                        |
| 6. | Cooperative Institution                     |
| 7. | Micro Finance Institution                   |
| 8. | Fishery Product Processing Industry         |
| 9. | Fishery production facility companies       |
| 10. | Non-governmental organization               |
| 11. | Fishermen Development Task Force            |
| 12. | University                                  |

Figure 4. Element and graphic responsibility institution.

Base on ISM analysis there are four basic institution to support increasing job satisfaction and loyalty of fishermen, namely the Central Government, Provincial Government, Local Government and related Agencies because those are in independent quadrant. In the linkage quadrant there are seven institutions, namely banking, cooperatives, microfinance institutions, fishery product processing industry, fishery production facility companies, fisherman development institutions, universities. Meanwhile, the
institutions that play a least role in increasing job satisfaction and loyalty of fishermen are non-governmental organizations.

The findings show that there are four elements of government institutions that should be the main concern in increasing job satisfaction and loyalty of fishermen, namely the Central Government, Provincial Governments, Local Governments and related Agencies. This was also conveyed [25] who stated the importance of the role of government in its role in terms of allocation, distribution and stability of fisheries resources.

4. Discussion
In term of institution, from the ISM model that Central government is very important variable as it has the highest driving power and the lowest dependence power. This means this variable is very significant and drives all variable for increasing job fisher satisfaction and loyalty. So, fishing development program in Bengkulu is badly depend on Department of Maritimes and Fisheries (DMF), Jakarta. Bureaucracy inertia and less coordination among institutions that happened nowadays, especially in Bengkulu need a strongest role of central government. This will lead to provincial and autonomous government could work must better specially in fisheries development activities. This Central government (DMF) role include: properly policy suitable with local condition and resource allocation not only capital but also human resources.

Institution for increasing fisher job satisfaction and loyalty is significantly correlated with Political Support for Policy Making. Role and regulations making by policy maker absolutely is needed for fisher economic. This institution is able to make a smooth flow of fishing product and input in fishing central in Bengkulu and finally can rise fisher income. It is also related to available subsidies policy, especially fishing fuel and fishing tool. Government policy in all level certainly as very important to make fisher happy in their business.

In order to increase job fisher satisfaction and loyalty, goal of fishing development in Bengkulu has to focus on how to increase of fishing income and how to make its business sustainable. Both need fishing better marketing not only for fishing product but input in fishing activities. In doing so, the establishment of economic institution in village level is very essential. Fisher Institution in village level is also able to resolve human resource problem, such as improving fisher skill in technology using.

5. Conclusion
1. Study shows that there are two essential goal in fishing strategy development strategy Bengkulu Province. Those have highest driving force and independent namely: (1) An increasing in of the fisher income and (2) the sustainability of fishing business. Beside that It also find out that Political Support for Policy Making is a very badly need variable. Meanwhile, main elements obstacle in increasing fisher job satisfaction and loyalty is No Partnership benefit to all parties. Lastly, institution that has strong power is central government, Government of Indonesia.

2. Institution for increasing fisher job satisfaction and loyalty is significantly correlated with Political Support for Policy Making. Role and regulations making by policy maker absolutely is needed for fisher economic. This institution is able to make a smooth flow of fishing product and input in fishing central in Bengkulu and finally can rise fisher income. It is also related to available subsidies policy, especially fishing fuel and fishing tool. Government policy in all level certainly as very important to make fisher happy in their business. In doing so, the establishment of economic institution in village level is very essential. Fisher Institution in village level is also able to resolve human resource problem, such as improving fisher skill in technology using and increasing economic properly partnership.

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