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## Socioeconomic and institutional factors affecting the sustainable development for fisheries in Bontang City, Indonesia

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# Socioeconomic and institutional factors affecting the sustainable development for fisheries in Bontang City, Indonesia

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**Abstract.** Coastal fisheries development in Bontang City is very complex and its sustainability is challenging. This paper is aimed at: (1) investigating socioeconomic and institutional factors affecting sustainable fisheries development in Bontang; (b) understanding livelihoods complexities for sustainable development of fisheries. This study applied actor-oriented approach of development sociology to witnessing the dynamics of fisheries livelihoods and to capture everyday life of social actors at individual and institutional levels. Field research to collect data was conducted during April and July 2018 in the fishers' villages and government offices in Bontang. Results showed that social identities and fishers' way of life play an important role in fisheries development. In addition, the local institution named patronage system create and limit fishers' behaviour related to social relations with their patrons. Marine Spatial Planning process created by the city government seems ineffective in managing coastal resources in a sustainable basis. Fisheries livelihoods are complex and constructed from contestations of values, knowledge and interests of various social actors including fishers, fish traders, external entrepreneur, government staff, and NGO practitioner. It is concluded that to achieve sustainable development for fisheries in Bontang it is important to incorporate and understand livelihoods complexities of different individual and institutional actors in the policy making process.

## 1. Introduction

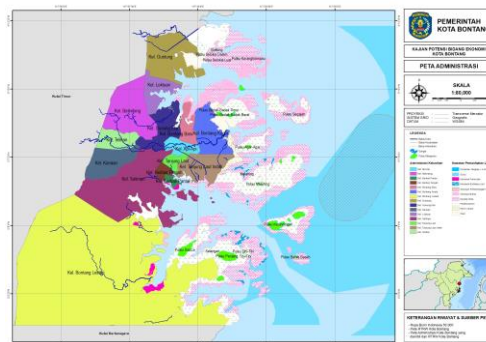
Bontang is one of coastal districts in East Kalimantan that has the area of 159.029 km<sup>2</sup> and its coastal waters are calculated for 70% of the entire administrative region [3]. The City Government has declared Bontang as a Maritime City which was stated in the City Long-term Development Plan 2000-2025 document. Two strategic national companies are located in the city namely PT. Pupuk Kaltim and PT. Badak NGL as the biggest urea fertilizer and natural gas companies in Indonesia. On the other hand, at the same coastal area the city also hosts for coal mining industry, small scale fisheries and marine aquaculture including tourism. Consequently, coastal development particularly fisheries in Bontang is very complex and its sustainability is challenging.

This paper is aimed at: (1) investigating socioeconomic and institutional factors affecting sustainable fisheries development in Bontang; (b) understanding livelihoods complexities for sustainable development of fisheries.



## 2. Research methods

This study applied actor-oriented approach of development sociology to witnessing the dynamics of fisheries livelihoods and to capture everyday life of social actors at individual and institutional levels. The approach recognises the existence of multiple realities within a community and among its actors, and it allows us to see how individuals and groups themselves bring about the developments that shape these realities [6] rather than outsiders defining what ‘development’ is. Field research was conducted during April and July 2018 in the fishers’ villages and government offices in Bontang to collect qualitative and quantitative data. Unit of analysis in the study are individual and institutional levels.

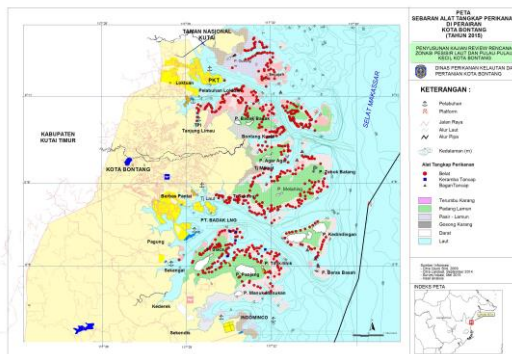


**Figure 1.** Map showing the study sites.

## 3. Results and discussion

Global resource degradation, particularly in fisheries, has triggered a growing need for fisheries co-management because it became evident that a fishery cannot be managed effectively without the cooperation and participation of fishers to make the laws and regulations work effectively [8]. Fisheries co-management is defined as a partnership in which government, the community of local resource users (fishers), external agents (non-governmental organizations, university, and research institutions), and other fisheries and coastal resource stakeholders (boat owners, fish traders, money lenders, tourism establishments, etc.) share the responsibility and authority for making decisions about the management of a fishery [1,8].

The study area is considered as the important site for the fisheries and marine economy within the East Kalimantan Province. The coastal line of Bontang is estimated 139 km. It has the sea grass bed ecosystem of 2.340 ha, live coral 2.673 ha, mangrove area 1.072 ha and small island mainly for tourism such as Beras Basah Island [3]. Conservation area in Bontang was declared through District Regulation No. 16/2012 to cover 5.121,38 ha. However, small-scale fishery activities, i.e. local fishing trap or ‘belat’ in Indonesian term, are strongly utilized in the conservation area even in the ‘No take zone’ which is consisting of the Beras Basah, Kedindingan and their surrounding waters.



**Figure 2.** Distribution of trap fisheries in the Bontang conservation area.

### 3.1 Socioeconomic and institutional factors

Historically, coastal area of Bontang are open access for immigrants from Sulawesi, i.e. Mamuju and Mandar people. Social identities and fishers' way of life play an important role in fisheries development in Bontang. These make familiarity and produce trust among community members as a social capital. The local institution named patronage system create and limit fishers' behavior related to social relations with their patrons. Patronage plays a pivotal role for production and marketing stages of local fisheries.

Economic factor also attracts the expansion of fisheries utilization. Economic viability of trap fisheries for example can generate the net present value of IDR 218 million and the benefit cost ratio of 12. It is estimated that more than 5,000 traps are operating in the coastal waters. Furthermore, Marine Spatial Planning process created by the city government before the implementation of Law No. 23 year 2014 concerning Local Government seems ineffective in managing coastal resources in a sustainable basis. The process of establishing this institution faced problems as the following:

- lack of transparency for determining parameters to delineate conservation zones;
- lack of understanding of fishers' livelihoods to be included in the plan;
- the plan does not represent conflict between different users such as industries, fisheries, tourism and conservation development.

### 3.2 Understanding fisheries livelihood complexities

This study is about livelihood of fishers living in the complex coastal region in Bontang. The livelihood concept became widely acknowledged when it appeared in the report of World Commission on Environment and Development (WCED) in 1987 [5]. The British Institute of Development Studies (IDS) of the University of Sussex were catalysts to trigger modern livelihood studies to understand the lives of poor people. They define a livelihood refers to the means of gaining a living, including livelihood capabilities, tangible assets, such as stores and resources, and intangible assets, such as claims and access" [5]. In addition, Department for International Development (DFID) of the United Kingdom launched a definition of livelihood that became widely accepted among development scholars and practitioners: "A livelihood system comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable

when it can cope with and recover from stress and shocks and maintain or enhance its capabilities and assets, both now and in the future, while not undermining the natural resource base” [4].

Livelihood implies more than making a living, i.e. economic strategies at household or inter-household levels. I follow the concept of livelihood from Long in which it best expresses the idea of individuals or groups striving to make a living, attempting to meet their various consumption and economic necessities, coping with uncertainties, responding to new opportunities, and choosing between different value positions [6].

The concept of social interface conveys the idea of some kind of face-to-face encounter between social actors with differing interests, resources and power, but these interactions are affected in part by institutional and cultural frameworks or resources that may not actually be physically or directly present [7].

After observing the everyday life of fishers in the study area it was found that their livelihoods are constructed from contestation of values, knowledge and interests of various social actors. Social actors are involved from fishers, fish traders, external entrepreneur, government (provincial & district levels) staff, and NGO practitioner. It is interesting to see that conservation as a social process is becoming ‘a socio-political arena’ where actors negotiate, cooperate and contest different interests. Fishers will be cooperating with this ‘top-down’ or external development intervention as long as they believe this approach positively affects their livelihoods. From this perspective, I contend that the major factors such as livelihoods of coastal people, economic incentives and MSP institution strongly determine the success of fisheries development in a sustainable way as shown in the Figure 3.



**Figure 3.** Major factors affecting to the fisheries development sustainability.

#### 4. Conclusions

It is concluded that fisheries livelihoods in Bontang are complex. Coastal development in the study area can be seen as the outcome of social interface where social actors at the multiple hierarchy levels, such as fishers, government staff, traders, entrepreneur and NGO people contest their different knowledge and interests in ‘socio-political arena’. To achieve sustainable development for fisheries in Bontang it is important to incorporate and understand livelihoods complexities of different individual and institutional actors in the policy making process.

#### 5. References

- [1] Allison E H and Ellis F 2001 The Livelihoods Approach and Management of Small Scale Fisheries. *Marine Policy* vol 25 no 5 377-388

- [2] Berkes F, R Mahon, P McConney, R Pollnac, Pomeroy R 2001 *Managing Small-Scale Fisheries. Alternative Directions and Methods* (Ottawa: International Development Research Center) p 202
- [3] BPS (Central Bureau of Statistics) Kota Bontang 2018 *Bontang Dalam Angka 2017* (Bontang: BPS) p 30
- [4] Carney D 1998 *Sustainable Rural Livelihoods. What Contribution Can We Make?* (Nottingham: Russell Press Ltd., for Department for International Development) p 4
- [5] De Haan L, Zoomers A 2005 Exploring the Frontier of Livelihoods Research. *Development and Change* **36(1)** 27-47
- [6] Long N 2001 *Development sociology. Actor perspectives.* (London and New York: Routledge) p 54
- [7] Long N, Villareal M 1993 *Exploring Development Interfaces: From the Transfer of Knowledge to the Transformation of Meaning* ed Schuurman F (London and New Jersey: Zed Books) p 185
- [8] Pomeroy R S, Berkes F 1997 Two to tango: the role of government in fisheries co-management. *Marine Policy* **21(5)** 465-480