

# Prospect and Strategy “From Vulnerability to Viability (V2V)” For Special Coastal Ecosystem Development for Fishermen of Buleleng Bali Indonesia

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*Abstract*---Indonesia as an archipelago country is surrounded by 17 thousand islands. Learning from natural disasters that have not been interrupted in Indonesia for the past five years (tsunami, landslide, flood, storm, etc.) that really cause so many negative impacts on the community, the nation and the resources themselves. Many governance system strategies have been prepared to manage vulnerable fisheries resources in Indonesia, from conventional pattern to modern. But it seems that it is still far from expectation. In such circumstance, the coastal resources in Indonesia, including the island of Bali, especially in Buleleng Regency, really need to be managed better with all its uniqueness. Qualitative and quantitative approaches (mixed method) are used to answer the proposed objectives. Focused Discussion Group (FGD) with competent stakeholders and primary survey are conducted to collect data. The stakeholder analysis is also asked to support the analysis of the study. The result indicates that the V2V strategy provides very good prospect in increasing the development of coastal ecosystem for small fisheries as long as recommendation is taken into account. However, it requires conditional commitment between the responsible stakeholders. Expectation of strategy design with V2V approach is to internalize external factors such as natural factor and action to respond to global changes from the community to achieve viable coastal marine fisheries system and can be used as an alternative to dealing with external parties to manage capture fisheries so that they can withstand current vulnerability.

*Keywords*---Vulnerability, Viability, Environmentally Friendly Beach, Development, Facing outsiders, Bali, Indonesia

## 1 Introduction

According to the FAO Report *The state of World Fisheries and Aquacultural 2016*, Indonesia fisheries production as achieve the second rank from the highest fisheries producing countries in the world (excluding aquatic plants and non-food products) is China (14.39 million tons/47.9 percent), Indonesia (11.63 million tons/38.7 percent), Philippines (1.4 million tons/4.7 percent), Korea (1.3 million tons/4.5 percent) and other countries only produce under Korean country with a percentage range below 4.5 percent of total world production. This condition is an opportunity for Indonesia to become the largest producer of fisheries in the world competing with China.

Likewise Indonesia is one of the archipelagic countries surrounded by around 17 thousand islands. From the experience of successive natural disasters in Indonesia over the past five years (tsunami,

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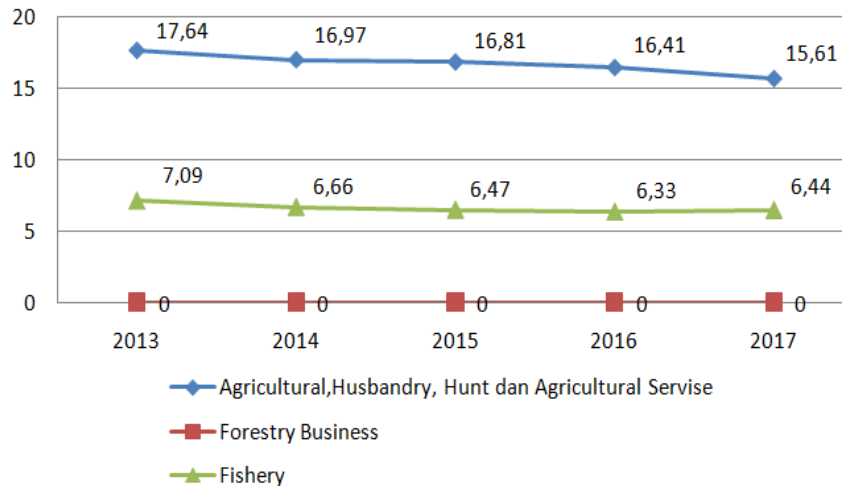
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landslide, flood, storm, etc.) that really cause so many negative impacts on the community, the nation and the resources themselves. Many governance system strategies have been prepared to manage vulnerable fisheries resources in Indonesia, from conventional pattern to modern. But what about the condition of fisheries, especially in Buleleng, seen from the contribution of GRDP (Gross Regional Domestic Product) from the sub-sector of fisheries can be seen in the following Figure 1;

**Figure 1**  
**Distribution of GRDP at Current Price According to the Subsector of the Agriculture, Fisheries and Forestry Business Field in 2013 - 2017**



The illustration in Figure 1 shows that the contribution of the sub-sector of fisheries to the GRDP of Buleleng Regency from 2013 to 2017 experienced a relatively small increase only 0.11 percent. This indicates a slowdown in production and even relatively low growth.

*The main problems in this study are as follows:*

1. What are the Condition of social, economic and local traditional values in small fishing business in Buleleng, Bali.
2. What strategies are needed in order to get out of life's vulnerability towards survival on the basis of local wisdom for small fishermen in Buleleng.

*The objectives of this study are as follows:*

1. To explore and identify the social, economic and values of the local wisdom of small fishermen in Buleleng Regency.
2. To formulate and Selecting strategy of small fishermen to get out of vulnerability towards survival on the basis of local wisdom for small fishermen in Buleleng.

## 2 Research Method

### *Qualitative Approach*

The qualitative approach is carried out by conducting near observation or directly in the field with in-depth interview to experts including: Fisherman Expert, Humanist, Customary Chairperson, Hindu Religious Leader/Sulinggih. Where the data is expected from experts about their respective perception of the condition of fishermen with their activities that adhere to the noble values of local wisdom that apply in their region. Likewise, identification of fishermen data will be conducted through Focus Group Discussion (FGD) involving stakeholders including academics, entrepreneurs, government and fishing community known as the ABGC approach.

### *Taking Sample*

The selection of the sample location takes in three research locations namely West Buleleng, Pemuteran Village, Gerokgak Sub-district (Batu Ampar Tourism Development Center) those are 3

people, Central Buleleng, Kalibukbuk Village, Buleleng Sub-district (Lovina Tourism Development Center) those are 7 people and East Buleleng, Les & Penuktukan Villages, Tejakula Sub-district (Sanih Water Tourism Development Center) those are 31 people. With the consideration that from the three locations referred to until now the condition still exists the activity of small fishermen based on local wisdom

### 3 Results and Discussion

#### 1. Condition of Social, Economic, and Customary of Small Fishermen in Buleleng Bali

##### A. Ship, Boat and Type of Fishing Equipment

Type of fishing equipment of small fishermen used is fishing rod, nets, and bubu and using rumpon that are made in mutual cooperation based on the principle of a sense of togetherness known as the local term "*Sagilik Saguluk Salunglung Sabayanka, Paras Paros Sarpanaya*" which by small fishermen or also called *Bendegaas* in Bali and in Buleleng in particular. All fishing gear owned in small size is purchased by utilizing loan from neighbor, investor and credit institution that is formed by the customary village in Bali (Customary Village Credit Institution)

From 41 small fishermen who are the sample of this study, the number of fishing equipment uses fishing nets of 3 - 4 units are as many as 8 people, only 2 - 3 units of nets are as many as 9 people and only use fishing rod of 10-15 units are as many as 7 people. Bubu Fishing of 6 - 8 units are as 8 people, Bubu Net of 6 - 9 units are 2 people, and only Bubu of 4 - 5 units are 2 people.

##### B. Number of Small Fishermen Income

From the distribution of samples of small fishermen studied who earn in nominal 500 thousand rupiah are as many as 15 people (36.59%), 700 thousand rupiah are 11 people (26.83%), 1 million rupiah are 11 people (26.83%), and 1.5 million rupiah are 4 people (9.74%)

##### C. Number of Family Dependent

The dependent of small fishing family who is the sample of the study is an average of 3 people per Capita of Family.

##### D. Type of Home

The home of small fishermen made of board, Wood, Bamboo as many as 25 people or 60.98%, Stone and red brick are as many as 11 people or 26.83%, made from Stone, Red Brick, ceramics are only 5 people or 12.19%

##### E. Frequency of Eating and Consuming Meat

The frequency and consumption of meat for small fishermen who are sampled are the average frequency of meal as many as 3 times a day and the meat consumption is two times a month is 2 people (4.88%), Not once a month is 3 people (7.32%), 4 times a month or once a week is 36 people (87.80%).

##### F. Household Assets

All samples selected from 41 small fishermen own existing household assets, the proof is that there is only 1 person or (2.4%) small fishermen who have the most assets, such as having motorbike, TV, refrigerator, garden, savings and land, and at least is 2 people or (7.2%) only have TV and land assets, and others have assets such as motorbike, TV and land, there are 12 people or (28.5%), and those who have assets such as motorbike, TV, refrigerator, garden and land are 9 people, or (21.4%), there are even fishermen who only have assets such as motorbike, TV, refrigerator and land those are 2 fishermen or (4.8%) fishermen, there are only 4 people or 9.6% who own assets such as motorbike, TV and refrigerator, and also 5 fishermen or (11.9%) small fishermen who have assets such as motorbike, TV and garden, even the garden is not entirely his property, while 6

people or (14.2%) small fishermen have only motorbike and TV, that is the economic condition of small fishermen in Buleleng, especially in the sample location.

### *G. Type of Latrine/WC*

Bathroom Latrine/WC is one of the most important elements in the household. In addition to maintain family health, it is also easier for small fishermen to do Bathing, Washing and Toilet (MCK). MCK activities carelessly are not the era anymore where it will be bad for health and esthetics in life. For the ownership of type of LatrineKM/WC for small fishermen who become the sample of the study is 35 people (85.37%) who have private KM/WC and 6 people (14.63%) who do not have KM/WC in which the small fishermen use river and/or public KM/WC.

### *H. Availability of Clean Water*

Water is one of the main points of life, various kinds of water functions make it one of the consumption needs that is very important to pay attention to cleanliness besides for water consumption is also used for various other needs such as the need for bathing, cooking, washing and so on. Apart from its function, the presence of clean water for small fishermen is the most basic need for priority. In utilizing the available water for small fishermen who are the sample that use Gallon Bottled Water are 2 people (4.88%), Rainfed Water are 5 people (12.19%), Dig Well are 10 people (24.39%), Drill well are 17 people, (41.46%), PAM water are 7 people (17.07%)

## 2. Strategy of Small Fishermen Household in Meeting Life Needs

### *A. Active Strategy*

#### *1. Employment and side business*

Employment or side business is an effort made by small fishermen after making a capital loan in anticipation if the fish season or the famine season occurs. To see the employment and side business that the respondents do from the capital loan they get can be seen in the distribution of small fishermen based on employment and side business to survive due to erratic fish season.

From the 41 small fishermen who are the sample of this study, there are 18 people (43.90%) utilize their time to work as odd laborer, as farm laborer are 12 people (29.27%), Services/Trading Business are 6 people (14.63%). Even there are 5 people who do not work at all (12.20%).

#### *2. Role of Family Member*

From the role of family member of small fishermen, especially the wives of fishermen who help to work to support her husband's income as fishermen as many as 27 people (65.85%), while only 31.15 (%) who do not help to work or 14 people. While the role of family member of children from small fishermen for those who have graduated from school contributes to their parents' income by working out of the village as private employee and as trade service taking wage in urban area, namely as many as 17 people (41.41%), and those who do not help are 58.54% or 24 people.

This is due to the recognition of the result of in-depth interview with 5 small fishermen; Mr. Suryanto, Pemuteran Village, West Buleleng, Mr. Ketut Sedana and Mr. Putu Sumardana, Kalibukbuk Village, Central Buleleng, Mr. Gede Galih and Mr. Wayan Arnaya, Les Village, East Buleleng. Where the substance of the answers and statements are almost the same in terms of strategies for fulfilling their household needs and when the fish season is erratic, their wives and children also help to work to help the family's economy.

*“Riantuk kewentenan ring segara nenten praside mastikayang ngamolihang ulam segara, angge nagingin pangupa jiwa ring ngelantur kauripan puniki tityang medua kurenan pianak naler nyarengin mekarya napi je polih wantah angge nyambung hidup dados buruh ring tegalan, ngojek, nyanggra tamiu sane melancaran meriki, menawi tamu arsa melancaran ketengahin segara naler tyang iringang melancaran, lan tyang meduwe kurenan nyambi madolan ajeng ajengan semeton druwene.”*

“Seeing the condition of the parent, namely his/her father as fisherman whose effort to catch fish is very much influenced by the season even known as the famine season, the natural factor of great wind wave the practice of fishing activities stop while the cost of living does not stop, the attitude is carried out by family members including wives and children of fishermen outside their school hour, (Result of the most recent interview in 2018) *“Medasar antuk bhakti ring lan inut ring pituduh rerama pianak tyang sami nenten ngelantaran ngeranjing rauh perguruan tinggi kanggeang wantah sekolah SMA kemanten, raris melajah megae ipun sekadi mekuli anake mauwosang, yening sekadi mangkine puniki wenten perkembangan pariwisata kebaos alit-alit deriki ngawit masekolah bidang pariwisata.”*”

“Respect and Understanding the difficulties of parents the children are not willing to go to school until college only graduating from senior high school (SMA) and even just graduating under high school have tried to work even if others like important private employee can help to ease the burden of their parents” (Result of the most recent interview in 2018)

### *B. Passive Strategy*

#### *Reducing Clothing and Food Expenditures*

Almost all of the small fishermen taken as sample reduce their food expenditure. One answer revealed in oral Balinese is the following;

*“Dumun daweg musim akeh ulam disegarane lan tyang ngamolihan ulan akeh, Tyang sekeluarga ngajeng ajeng ajengan sane becik becik, minab nyabran rahine utawi aminggu ping tiga ,naler ajeng-ajengan akeh macemne, sakewanten sekadi mangkin ulame kenyat rereh rerehane kanggeang napi je asal dados anggen darang ajengan punike kanggeang rateng”*

“In the past during many fish season, we and our family ate well every day, sometimes at least three times a week, the mothermade food and various types of food, but now there are no fish, it’s hard to call it now, even we eat now as it is and whatever can be cooked” (Result of the most recent interview in 2018)

From the sample of small fishermen, it turns out that all of them also answer that they would reduce clothing expenses. As revealed by one of the Fishermen’s Housewives in Balinese language is as follows;

*“Tityang meduwe manah jagi metumbasan perabotan ring puwaregan,lan kewace sakewanten riantuk kewentenane sekadi puniki akedik utawi tan ngamolihan ulam pastike sampun jinah angge prebea maurip kirang, raris indik metumbasan serana inucap kanggeang ukuran tumbas sane mangkin anggen dumun numbas ajeng-ajengan anggen ngelantaran urip benjangan yening polih rejeki mewali irike wau metumbasan napi sane ke aptiang”*

“I have the desire to buy kitchen furniture, household appliances, clothes and others because I get a little fish, sometimes even not getting it at all so to prioritize living first to buy food and drink and when there is a fortune and fish catches are many, the desire will be realized” (Result of the most recent interview in 2018).

### *C. Network strategy*

The network strategies utilized by small fishermen include :

#### *1. Other Business Capital Loan As Survival Strategy*

In this case the loan is made by small fishermen to pay for household loans and fisheries. In utilizing the loan for small fishermen who make loan as many as 36 people (87.80%) while only 5 people (12.20%) who do not utilize the loan facilities from family relatives, customary LPD, and neighbor.

## 2. Place to make a loan

Seeing the distribution of sample of small fishermen who borrow from institution such as family relatives, neighbor and village credit institution, are family relatives of 20 people (44.78%), customary LPD are 14 people (34.15%), Neighbor are 2 people (4.88 %), and those who do not borrow are 5 people or 12.19%

*“yening ten wenten uleh ulehan terpaksa tyang nyelang jinah ring semeton akedik akedik napi mawinan tyang ten purun nyelang akeh takut ten praside ngewaliang pungkuran naler yening mogbog nitya wacana ajerih manah keni karmapala tan becik kewari wekas utawi dados reraosan ring masyarakat iriki”*

“If there are no more attempts it is forced to borrow money from the closest family first and even then the amount is not too big, afraid that they will not be able to return in the future, even fearing karma palawill be default, and become public gossip here, (Result of the most recent interview in 2018)

## 3. Number of Loan

The number of loan is the nominal debt or the number of loan borrowed by small fishermen themselves. The number of loan that has been made by small fishermen who are sampled includes under IDR800 thousand rupiah are 26 people (63, 41%), ranging from 1 million to 2 million are as many as 6 people (14.63%), from 5 million rupiah more are as many as 5 people (12.20%) and those who do not borrow at all are 4 people (9.76%)

*“Tityang nyelang jinah nenten akeh-akeh wantah kirang langkung ayuta ajerih manah ten presida ngewaliang benjang pungkur”*

“I have not ever borrowed a lot of around one million rupiah, I am afraid that I will not be able to pay it in the future” (Result of the most recent interview in 2018).

## 4. Reason for Fishermen who are Still Surviving as Fishermen

Surviving being a small fisherman is not an option for fisherman in Buleleng, but being a fisherman is a job that is forced according to them the various reasons they convey, from the difficulty of finding employment, low education, the absence of job vacancies, to their relatively old age keep working as a small fisherman. Sometimes the work is fun, boring and full of risks, which is like a work being a fisherman. Running the profession is not easy, where the job has a high risk, the job requires strong physical and mental, the reason that the fishermen continue to work as fishermen is low education and the difficulty of finding work. From the survey, the reason for remaining as fishermen are 11 people (26.83%), difficulty to find job are 17 people (41.46%), there are no other job vacancy are 9 people (21.95%) because the age is 4 people (9.76%).

An acknowledgment from informant interviewed in depth is as follows *“Tityang dumun tan masuk masekolah nika mawinan mangkin ngelanturang usaha ngerereh ulam manten ring segara, punika mawinan tyang sekadi kemewehan sampun satya ring dewek tyang, lian ring punika indik ngerereh ulam kesegara sekantun tyang cenik sampun ajake ring reraman tyang dadosne wantah usaha puniki senengin utawi bisain tyang lan usaha turun temurun “*

“I did not go to school because I am now looking for fish in the sea, that’s why the trouble is already friendly with me besides the problem of finding fish when I was little I was invited by parents to look for fish so that I enjoyed this business and I could and continue the business of myparents” (Result of the most recent interview in 2018)

The adaptation strategy carried out by small fishermen who become the sample of this study is active-passive strategies by reducing expenditure are 35 people (85.37%), and passive-active strategies through loan network are 6 people (14.63%)

#### 4 Conclusion

- 1) The vulnerability of the small fishermen community of Buleleng is inseparable from various factors, this is due to changes in the catch season, where these factors have caused uncertainty in the catch of small fishermen, so that when the season does not catch fish the fishermen are very troubled to meet their daily consumption needs.
- 2) Small fishermen still survive as fishermen because of the low level of education of fishermen and the difficulty of finding job, including the fishermen's family with low education cause the difficulty for fishermen to access available employment opportunity, due to limited ability and expertise, and some small fishermen are also due the factor is old age, so it is difficult to work in other places.
- 3) Strategies to deal with the economic problem of small fishermen family in Buleleng who have difficulty in meeting their family's needs, namely active, passive strategies and network strategy. Actively namely adding hour of work or having side job, and passively that is reducing expenditure when there is no fish, and the network strategy is to make loan to family relatives, neighbor and LPD credit institution.

#### Suggestions

Based on the conclusion point of the result of the study, several things can be proposed as follows:

- 1) Optimizing cooperation between fishermen so that the fishermen can increase anticipatory fish catches against various possibilities in seasonal fish in the sea.
- 2) Increasing the education level of the residents of the coastal community in order to educate the lives of small fishermen community not only in formal education but also in informal/non-formal education.
- 3) Fishermen groups and assistance activities need to be established both by extension worker, NGOs, customary institution and so on, so that small fishermen can be coordinated in organization such as providing skill training, and providing credit facilities and guarantee from their businesses.
- 4) Providing support to small fishermen in terms of procurement of facilities and infrastructure such as consumer and productive credit for purchasing outboard machine in order to support fishing business in the sea.

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