

Factors that motivate Mappakasunggu women of seaweed farmers to develop a family economic survival strategy

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Abstract. Survival strategy is important for farmers in seaweed cultivation due to waves that often disrupt their economic activities. The farmers will be usually looking for alternative jobs or additional livelihood. In a bad condition, the women of seaweed farmers should also be ready to be able to share the role in earning a living to meet the economic needs of the household. So, the purpose of this research is to describe the factors causing women of seaweed farmers to do survival strategy and what strategy is used to solve family economic problems. This research was conducted at Mappakasunggu in Takalar regency, the South Sulawesi Province-Indonesia between July and September 2017. Subjects in this research were five individual female household members of seaweed farmers. This research is a qualitative research with case study method, the data collection techniques using purposive sampling, the method of in-depth interview and participant observation especially to obtain data from female individuals who become unit of the case while the focus of data analysis is done by revealing the biography (life history) and interpretation of meanings behind the survival process of women traveled. Results found the factors that cause women seaweed farmers to do survival strategy that is because it has a low-income level and as a single breadwinner while survival strategy taken by women seaweed farmers are (a) to work on farming (b) to own small shop at home, (c) to process seaweed food industry, (d) to farm salt, and (e) to collect and sell seaweed.

Key Words: cultivating, seaweed, strategy, survival, women.

Introduction. The development of seaweed cultivation business has had a positive impact on the economy of coastal families in most of the developing countries, especially women contributing to seaweed cultivation and managing it into value-added food products for the economy (Msuya & Hurtado 2017). The economic condition of coastal communities is relatively poor. Most coastal communities work as capture fishermen and farm labourers, whose sources of income are very limited. The limitations of income are experienced by the poor in coastal areas, thus affecting the survival of coastal women between seaweed cultivation and coastal communities which has been widely practiced. The seaweed cultivation has improved the standard of living of households in terms of access to education, and housing improvements (Hussin & Khoso 2017).

At first, the research on seaweed cultivation was more directed to the related environmental, cultural, and political dimension but later developed on the condition of the survival of women as the party who most felt the limitations of the economy. The women's roles today have evolved not only as a housewife, accompanying husband and caring for children but also have been involved in the social and economic field of society (Febri et al 2017). The involvement of women in utilizing and developing their skills in seaweed cultivation is expected to help meet the family's economic needs. This is because the husbands who work as fishermen are very dependent on changes in weather and high sea waves, causing difficulties in earning a living. Women or wives of fishermen are no longer only responsible for household activities, but participate in helping to overcome the family's economic difficulties. This has resulted in the workload doubling, one side as a housewife and also helping to make a living. This activity indirectly

combines women's work in productive and reproductive ways (de la Torre-Castro et al 2017).

Research on seaweed farmers has been widely revealed by researchers (Buschmann et al 2017; Fausayana et al 2017; Supriyantini et al 2018), but this study is different because it aims to reveal a survival strategy, where there are similar roles and rights between women and men in managing the household economy. Even though, in fact women are more vulnerable than men (Perez et al 2015; Haris et al 2018; Subair et al 2019). It is this that makes this research very important, which aims at identifying the factors that cause women of seaweed farmers to adopt a survival strategy and how women's strategy of defending the life of their family's economy.

Material and Method

The location, subject, and the time of research. This research was conducted at Mappakasunggu village in Takalar Regency of South Sulawesi Province, Indonesia between July and September 2017. The subjects in this study are five individual female household members of seaweed farmers. Individuals participating in the research are those who have the experience required by the ongoing research with saturated data (Neuman 2014; Afyanti & Imami 2014; Lewis 2015). Sampling was taken at the community of women seaweed farmers, UKM Mapakkasunggu village, Takalar, South Sulawesi. Search sites can be seen in Figure 1.

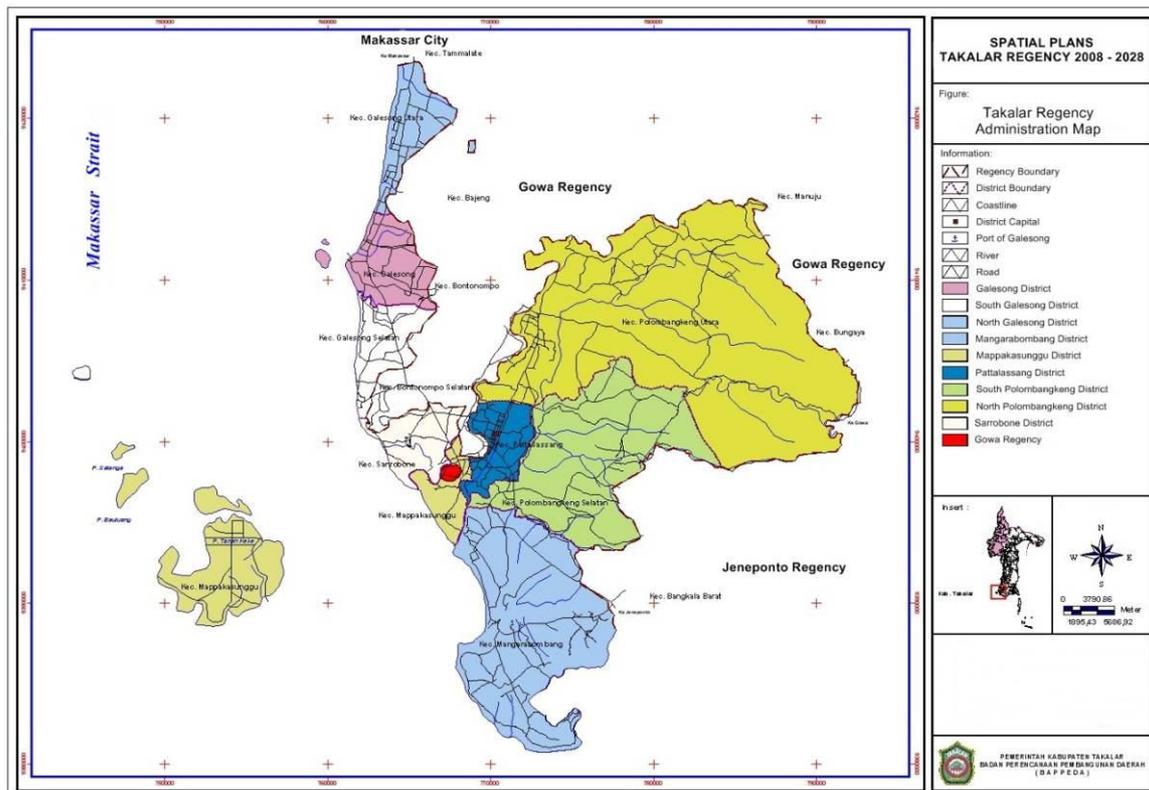


Figure 1. Mappakasunggu in Takalar Regency.

Types and sources of data. This study uses a qualitative approach related to the case study method (Padgett 2016). While the data collection technique uses purposive sampling. The research instruments used were in-depth interview techniques and observations, especially for women as informants (Table 1). Observations were conducted by observing the daily activities of informants namely women seaweed farmers. While the process of taking interview data is done by communicating directly about the life of the informant.

Table 1

The types of data and collection methods based on the research objectives

<i>Objective</i>	<i>Variables measured</i>	<i>Methods of data collection</i>
To describe the factors that cause women seaweed farmers to do a strategy for survival.	The factors that cause women seaweed farmers to do survival strategy.	Deep interview and field observation.
To delineate the strategy of women in maintaining the family's economic life.	The form of survival strategy of women seaweed farmers in overcoming the family economy.	In-depth interviews, field observations, and data processing results.

Data analysis. Focussed data analysis is done by uncovering biography (life history) and interpretation of the meanings of the survival process that women take. This research uses the theory of Ellis (2000) that conceptually, survival strategy shows in the process of constructing ideas from various activities and social support in order to survive and to improve its social and economic level.

Results. The results of this study outline the involvement of women in seaweed farming and women's survival strategies when waiting for seaweed harvesting. This is also reinforced by research from Brennan (2013) and Hussin & Khoso (2017) that seaweed cultivation can increase the income of fishermen in coastal areas and empower women to manage seaweed. Since 2000, it has had a positive impact on coastal communities, the development of seaweed cultivation in the coastal area of Mappakasunggu village, in Takalar Regency of South Sulawesi-Indonesia. The presence of seaweed cultivation business in Mappakasunggu Village has also provided roads and opportunities for coastal women in assisting their family's economy. Based on 2017 statistical data in Table 2, the Mappakasunggu village has a balanced number of male and female populations.

Table 2

Population and gender in Mappakasunggu Village

<i>Years</i>	<i>Gender</i>		<i>Total population</i>
	<i>Male</i>	<i>Female</i>	
2013	7378	8248	15 626
2014	7437	8321	15 758
2015	7495	8392	15 887
2016	7548	8462	16 010

Data of Statistik B. P. (2017).

On the observation, the cooperation between men and women is felt in the cultivation of seaweed. This is in line with Msuya & Hurtado (2017) research that in Southeast Asia, men and women engage in almost equal numbers at different levels of the seaweed industry. Seaweed cultivation in Southeast Asia is done as a family-owned business involving all family members.

An interesting phenomenon to be studied on seaweed cultivation in the Mappakasunggu village, that in certain conditions the seaweed farmers in the village do not conduct cultivation like the others. Usually seaweed harvest is conducted every month of the year, but the cultivation of seaweed in Mappakasunggu village can only harvest four times a year. This problem is very hard for the seaweed farmers which in a certain month they cannot do seaweed cultivation. In Table 3 below, it shows the amount of rainfall and rainy days begin to occur at the end of September with the peak occurred in December until March, so that the farmers will begin to plant back in April.

Table 3

The amount of rainfall and rainy day by month in Mappakasunggu sub-district, 2016

<i>Month</i>	<i>Rainfall (mm³)</i>	<i>Rainy day</i>
January	176	15
February	398	15
March	154	12
April	66	5
May	29	4
June	24	5
July	49	4
August	-	1
September	189	7
October	191	11
November	59	9
December	417	11

Data of Statistik B. P. (2017).

This is due to high rainfall, large waves in each of those months, where the area is a loose sea with no barrier of waves like mangrove as a waves barrier, whereas the preservation of mangrove forests is important for various reasons, i.e. erosion prevention beach and seawater intrusion; provision of spawning ground, breeding, and food of various marine biota (Haris et al 2017). Takallar District, South Sulawesi, referred to the case area that has experienced mangrove degradation over the last few decades. The change is mainly due to the clearance and conversion of mangroves into seaweed cultivation itself (Malik et al 2016). The next, based on research of Syafitri et al (2017) that the outbreak of ice sickness found on seaweed cultivation in Indonesia is still very high but can be controlled with extra mangrove leaves (*Sonneratia alba*) containing bacteriostatic which potentially attack the disease. With these natural conditions, it requires seaweed farmers to find another job at the time not to cultivate seaweed. However, it is interesting to look at, where women seaweed farmers in Mappakasunggu village have long been involved in some survival strategies.

Following are the reasons for the causes of women in Mappakasunggu, Takalar City implementing a survival strategy. Female farmers who work on seaweed cultivation in certain situations seek additional work to help meet the family's economic needs. This condition is caused by a low level of family economic income and there are also women who are single or single parent breadwinners.

Household income level is an important indicator of the household level of living. Generally, the household income in rural or coastal areas does not come from a single source but comes from two or more sources of income. This level of income is thought to be influenced by the fulfilment of basic needs of farm households. As De la Torre-Castro et al (2017) note that in order to increase income, a member of the family can seek additional income from other sources to help the head of the family so that his income can increase.

In this research, it is found that seaweed farmer women did extra work because the family income level is low. Low level of income is caused by the lack of job options for the head of household. Some men in the Mappakasunggu area if not planting seaweed then they work odd jobs, which leads to an uncertain income they earn, so this requires women to adapt by participating in work in order to earn income and remain as a housekeeper as a whole. So that men and women have different ways of adapting to livelihood pressures (Colwell et al 2017). More details can be seen in Table 4.

The results of data analysis from Table 4, explained that the factors that cause low family income is the number of family dependents, the husband's work is not stable, the low education of husband and wife that both do not know how to empower the potential of the family. These cause the wives to go to work to earn an extra living for daily survival.

Table 4

Overview of factors that cause low family income

<i>Women seaweed farmers</i>	<i>Causative factor</i>				
	<i>Age</i>	<i>Status</i>	<i>Education</i>	<i>Number of people in the household</i>	<i>Husband's job</i>
Mother A	56 years old	Married	Elementary school	There are 15 people namely: 6 children, 4 daughters-in-law, and 5 grandchildren	Farmers of seaweed, carpenters, salt farmers (working odd jobs)
Mother B	40 years old	Married	Elementary school	There are 6 people; 3 children, 2 daughters-in-law and a grandson	Security guards in the settlements (away from the residence)
Mother C	28 years old	Married	Elementary school	There are 7 people; 4 children, a grandmother, a grandfather and a daughter	Carpenters, salt farmers (working odd jobs and away from the residence)

Source: Field interview and observation, 2017.

The single livelihood seekers. There are several cases in the female household of seaweed farmers, i.e. husbands who do not work due to severe illness and a deceased husband (widow) leads to the fulfilment of the family's need more to the women as the support of family life. For women the income received can increase the effectiveness of the household. This indicates that a woman's personal income can operate as a family income rather than an individual resource (Downey & Moen 1987). More details can be seen in Table 5.

Table 5

Overview the causative factor becomes a single breadwinner

<i>Women seaweed farmers</i>	<i>Causative factor</i>				
	<i>Age</i>	<i>Status</i>	<i>Education</i>	<i>Number of people in the household</i>	<i>Husband's job</i>
Mother D	41 years old	Married	Elementary school	There are 13 people: 5 children, 3 people, 2 grandchildren and 1 husband	Husband does not work because of a serious illness
Mother E	55 years old	Widow	Senior high school	There are 7 people: 2 children, 2 son in law, 2 grandchildren, and a nephew	Husband died

Source: Field interview and observation, 2017.

Results of data analysis from Table 5 explain that there is a difference between the data in Table 4. Based on the results of observations, these women concurrently become family heads or single breadwinners. This explains that these women have a dual role, namely managing family finances and empowering the potential within them to earn a living. As in the case of mother D who opened a small shop business as well as selling laundry services from house to house. Also the mother of E with a better educational background was able to see the business opportunities of food processing on seaweed. Results of this data analysis are in line with research that states that women's resistance to poverty if left by husband (died or divorced), then the creative energy arises (Arora & Rada 2017).

The survival strategy of women seaweed farmers. The survival strategy experienced by women seaweed farmers is a double role brand of wives as well as extra breadwinners in improving the family economy. In the short-run economic conditions, they develop a survival strategy during the non-performing period of seaweed cultivation. This study revealed low levels of education are also the cause of these women being able only to work in jobs with low wages. So that additional work as a survival strategy of women seaweed farmers at Mappakasunggu can be described from the findings of observations as follows:

The cultivator of agricultural land. One of the strategies to supplement the family income is to work in the field of agriculture owned by a person such as mother A, who told us that to meet the economic needs of the family she is assisted by several members of her family by working on the farms owned by people in Mappakasunggu village. Informants work a week 3 times starting at 07.00 am until 11:00 pm. She went to the location on foot because the location only takes 15 minutes from home. Wages are given by the owner every week of Rp. 35,000 in a week. The wage is not enough to meet the needs of his family. So A's mother has another side job to supplement the income.

The small shop at home. Having a small shop is also one of the survival strategies conducted by seaweed farmer women in Mappakasunggu which was experienced by mother D, besides being a housewife and a seaweed farmer, has a small shop beside the house guarded by her son who has dropped out of school. The income from the small shop is not enough, however, it can also fulfil the needs of the kitchen in the house itself.

The labor industry seaweed food management. Being a seaweed food industry management worker is also one of the survival strategies conducted by women seaweed farmers in Mappakasunggu, as experienced by mother B, mother C and mother D. One informant, mother B, recounted that besides being a seaweed farmer, in the waiting period of seaweed planting she chose to work as the part-time labourer in the seaweed food management industry. She explained that the income from working part-time can generate Rp. 25,000 in a day.

Farmers of salt. Seaweed farmer women in Mappakasunggu village develop survival strategies by working as salt farmers, such as mother A and mother C. One informant, mother C other than as a seaweed farmer, she worked as a salt farmer with an income of Rp. 50,000 in a week.

Seaweed gathering and processing industry. In the Mappakasunggu village there is a seaweed food management industry owned by a former seaweed farmer whose mother E is currently a seaweed gatherer and a seaweed food processing entrepreneur. Formerly E mother was a seaweed farmer, but she saw great opportunities in seaweed processing business she gained from her participation in various training held by government agencies.

Seeing the story of 5 individual female household members of seaweed farmers in the division of labour in which the role of wife and husband is equal in the fulfilment of family needs. Women are not only housewives but they also work like men's work that is cultivating seaweed. Then there are several females in the families appearing as the main breadwinners because her husband is sick, or works outside the city. There is a misunderstanding in seaweed farming families that by marrying their children at a young age can ease the burden of the family economy, the fact that marrying children's strategies is a new burden for families because of the increasing number of family members being financed.

The women get ideas to meet needs and can also create ideas (Zamroni et al 2017). This research is in line with Thorpe et al (2014) opinion that cooperation between men and women is divided by centralizing production in the hands of men while women dominate post-harvest processing and marketing. Table 6 shows some forms of survival

strategies for these five women representing the activities of other seaweed farmers in the Mappakasunggu village.

Table 6

The form of survival strategy of seaweed women

No	WSF	Survival strategies
1	Mother A	Works on other people's farms.
2	Mother B	Became a part-time worker in the small seafood management industry owned by mother E.
3	Mother C	Become a salt-field worker belonging to someone else.
4	Mother D	Having a small shop selling basic necessities, and being a laundry worker from house to house.
5	Mother E	The collector of seaweed cultivation and seaweed processing industry entrepreneur.

Source: Field interview and observation, 2017; WSF = women seaweed farmer.

Mother A chooses to cultivate someone else's agricultural land as her additional work, while mother B is looking for additional household expenses, she works as a part-time worker in E's mother's seaweed food management industry, while there is also a working C mother as a salt farmer not far from his house, a different case in D's mother chose to build a small shop beside her house by selling basic necessities and being a laundry worker from house to house. Ms E is a bit more fortunate with high school education so she can see opportunities to be able to manage seaweed into snacks such as sauce, chilli, crackers, and others, it makes her often invited to be speaker in various places in terms of seaweed food management.

The uniqueness of the livelihood pattern in the realm is that men and women work together. Thus, the contribution of coastal women's survival strategy to assist husbands has a big share in meeting household economic needs. This research is in line with Zamroni et al (2017) that coastal villages in Indonesia are more of a double strategy. That is, fishermen perform two different livelihood activities with families anticipating the fishing season and/or low fishing season.

Conclusions. The factors that cause women seaweed farmers to do survival strategy: first is because the family income level is low, this is because the husband's income is minimal, so it cannot meet the needs of the household economy. Secondly because as a single breadwinner, this is because the husband is no longer working because of severe illness and there are also husbands who have died, thus causing the women to become a single breadwinner while the survival strategy carried out by 5 examples of cases of women seaweed farmers (a) to work on farming (b) to owning small shop at home, (c) to processing seaweed food industry, (d) to farming salt, and (e) to collecting and selling seaweed.

To support the survival strategy of seaweed farmer community, the suggestion for policy owner that is government especially related department is expected to also cultivate mangrove around the coastal area. Where mangrove plants have a big share as a wave breakers that interfere with the continuity of seaweed cultivation which became one of the main factors lack of seaweed crops is only 4 times the harvest in one year. Conserving mangroves in coastal areas of Mappakasunggu then it is expected to improve seaweed cultivation as well as coastal people's economy.

Most importantly, Government is expected to provide training in improving the skills of women of seaweed farmers, so that they can explore their potential, as well as related departments, especially the Office of Cooperatives and Micro Small and Medium Enterprises (MSMEs/UMKM) can provide soft loans as business capital to improve the economy of coastal communities.

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