How reliable are the coastal management models in Central Buleleng Region?

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Abstract. This study aims to evaluate the implementation of the coastal resource management model in the Central Buleleng Region. Qualitative research design based on the CIPP model (Context, Input, Process, and Product) is used to assess the model's effectiveness that coastal community groups have implemented. Techniques and instruments of data collection through questionnaires and in-depth interviews. Based on the study results, it was found that the model implemented by the coastal community was in a good category. Specifically, the context component is categorized as very good. The input component is considered very good; only the infrastructure indicators are moderate. Meanwhile, the process component is in the moderate category, especially in the contribution and participation of all managers, which are considered moderate. Finally, the product component of the coastal resource management model is in the medium category, especially those related to the economic and environmental conditions of the coastal area. The implications of this study's results require improving the coastal resource management model, especially the process and product components. Available coastal resources must be managed by actively involving all coastal community groups, and their management needs to focus on achieving community welfare and environmental sustainability.

Keywords: Evaluation, Coastal Management, CIPP Model

1. Introduction

Coastal and marine resources are substantial and promising assets for the future [1]. The utilization of coastal and marine resources in each region has increased. However, its management is still far from optimal and sustainable. One of the main coastal potentials that must be mapped is coral reefs—the condition of coral reefs is an indicator of the condition of fisheries on the coast. Coral reefs are important because they play important ecological, social, and economic roles for other organisms and the lives of people near the coast [2]. Using the potential as well as possible requires integrated management of coastal resources. The first step is to map the potential of the coast. This provision has been explicitly stipulated in the Law on the Management of Coastal Resources (Law No. 1 of 2014) that utilizing the existing potential is directed to achieve prosperity while simultaneously improving coastal communities. This should be substantial capital for equitable development.

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There is an imbalance in development, especially in the tourism sector, which tends to focus on the South Bali area compared to other areas, such as North Bali (Buleleng Regency), East Bali (Bangli Regency and Karangasem Regency), and West Bali (Jembrana Regency). People in South Bali already earn the benefits of tourism and associated sectors. However, the opposite condition occurs in the people of North Bali, East Bali, and West Bali [3]. The result of these conditions is that each region has different levels of wealth.

Based on these factors, it is crucial to focus on areas with regional potential. This will help increase the number of tourist spots in the Province of Bali, which will help the local economy. In Bali Province, especially in Buleleng Regency, which has both coastal and marine potential as a tourist destination, regional development plans have not been made in the best and most complete way. Mapping regional potential is required to identify not only tourism areas but also non-physical potentials that are spread over areas in Buleleng Regency, such as community empowerment. Furthermore, mapping is carried out as a form of integrated regional management to determine changes in the regional tourism potential and to track the development of tourism in the region comprehensively.

The potential of coastal and marine resources in Buleleng Regency, which is spread in the regions of East Buleleng, Central Buleleng, and West Buleleng, has a varied distribution. The results of previous studies indicate that the most complete and dominant variation of coastal and marine resource potential is in the West Buleleng region [4]. This study evaluates how the coastal resource management model, especially for coral reefs, is used in the Central Buleleng region. Evaluating the coral reef management model is one way to improve its implementation. It can be used as a guide for building up coastal areas, especially for coral reef management.

2. Methods

This study uses a qualitative research approach and a type of evaluation research with the CIPP (Context, Input, Process, Product) evaluation model. This evaluation model was developed by Stufflebeam & Shinkfield [5], where in the implementation, the research process is carried out by analyzing data to answer the problem formulation without testing the hypothesis. This research's primary data are context, input, process, and product data regarding marine management model implementation..

Data were analyzed through descriptive analysis, with the data collection process through interviews, questionnaires, and documentation serving as additional data. The research design evaluating the implementation of the coastal resource management model in the Central Buleleng region using the CIPP (Context, Input, Process, Product) evaluation model is limited to coral reef management community groups. The CIPP evaluation model is seen as an evaluation model that can measure the overall form of evaluation activities, starting from the content, input, and process to the results obtained when conducting research.

3. Results and Discussion

Assessment of the implementation of coastal resource management based on the CIPP evaluation model is carried out using 20 indicators distributed to members of coastal community groups, including fishermen groups, tourism awareness groups (POKDARWIS),

and community supervisory groups (POKMASWAS). The results of the evaluation of each aspect are shown in Figure 1.

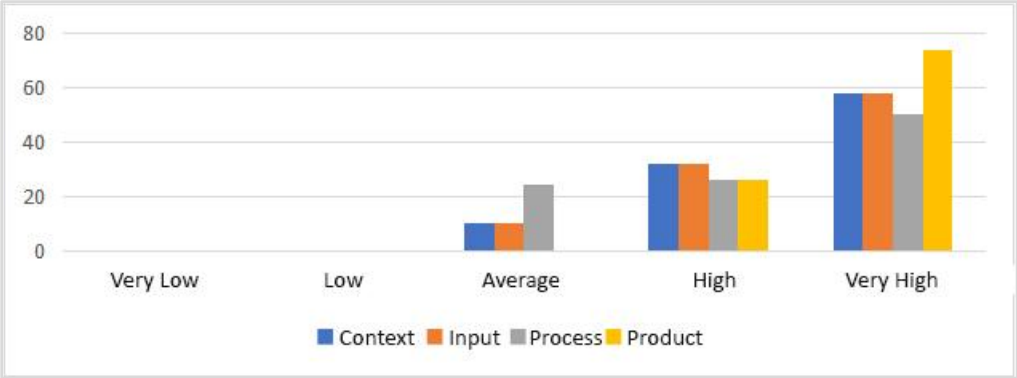

Figure 1. Evaluation of the Implementation of the Coastal Resource Management Model

Figure 1 shows the percentage of assessments in the context, input, process, and product aspects. The majority are in the very high category. The analysis and identification of each aspect are as follows.

3.1 Context aspect evaluation in Marine Management Model

The context variable consists of five indicators: the physical condition, the social condition, accessibility level, cooperation level, and environmental risk. The following is an analysis of the context aspect of the coastal resource management model. First, the results indicate that the support from the physical environment for community activities is very high (60%), while 30% state that the support for physical environmental conditions is relatively high, and the rest is 10%. Most coastal communities view sloping beaches (topography) and sandy beaches (geomorphology) as supporting their livelihoods. A sloping beach is a beach whose topography is almost flat [6]. The support felt by coastal communities is that they are easy to reach by public transportation and have many interesting phenomena, especially the natural scenery. Meanwhile, the sand beach supports community activities, including a salt pond area, a tidal agricultural area, and a coconut plantation area.

Second, the results indicate that the support of social conditions for community activities is very high (80%), while 20% state that the support for social conditions is relatively high. Most coastal communities view intensive social interaction and open nature as social characteristics that strongly support their lives. Intensive social interaction makes coastal communities have very close relationships [7]. This builds family relationships based on sympathy and not on rational considerations oriented to profit and loss. Meanwhile, their open nature makes them more adaptive to various social, cultural, and economic changes.

Third, the results obtained that the level of accessibility to the market is very high (80%), while 20% stated that the level of accessibility is relatively high. Most coastal communities view the high level of accessibility to the market as a factor that significantly benefits their

activities. Accessibility measures the ease of travel to meet needs resulting from the interaction between land use and transportation network systems. A high level of accessibility indicates convenience for coastal communities in obtaining the goods and services needed or selling the goods and services produced [8]. The high level of accessibility is created due to the availability of good infrastructure (road network) and supported by the availability of transportation facilities or facilities.

Forth, the results show that the level of cooperation between individuals in coastal communities is very high (70%), while 30% stated that cooperation is relatively high. Most coastal communities view a high level of cooperation as a social capital that strongly supports their livelihoods. Cooperation is an activity or effort by several people to achieve common goals [9]. A high level of cooperation indicates a high level of concern and solidarity. It can encourage the level of trust between individuals and groups of coastal communities to achieve the goal of unified coastal resource management. A high level of cooperation is created because coastal communities have strong social and professional networks.

Fifth, the results indicate that the environmental risk to community activities is high (60%,) while 40% stated that the environmental risk is relatively moderate. Most coastal communities view environmental pollution as an environmental risk that severely hampers their livelihoods. Massive environmental pollution, primarily from household and industrial waste, worsens environmental health [10]. This results in difficulties in maintaining coral reefs, reduces the number of fish catches, and reduces the quality of tourism objects developed by tourism awareness groups. Based on the indicators that make up the context aspect, it can be seen that the five indicators are in the very high category. This shows that the context part of the model for managing coastal resources in the Central Buleleng area is in the very high category.

3.2 Input aspect evaluation in Marine Management Model

The input variables consist of five indicators: infrastructure availability, community education, group members, social organizations, and the government's role. The following is an analysis of the input aspects of the coastal resource management model. First, the results indicate that the number of available marine infrastructure is very high (90%), while 10% stated that the number of equipment is relatively high. Most coastal communities view the infrastructure in the form of fish auctions, hatcheries, and the empowerment of small-scale community businesses as very supportive of their livelihoods [11]. The coastal community views that the developed facilities have been selected to meet the community's needs. The availability of these infrastructure facilities can be maximized to support the productivity of the fishing community. In addition, the procurement of speedboats and garages (Steiger) is very helpful for POKMASWAS to monitor its marine resources actively.

Second, the results indicate that the coastal community's education is high (70%), while 30% stated that the education of the coastal community is relatively moderate. Education for coastal communities significantly contributes to improving their living standards [12]. Having a high level of education also affects how coral reef conservation strategies and fishing are more sophisticated, including marketing the products and services they produce. In other words, the higher the education level, this will then have tremendous impact on the management of marine resources carried out by coastal communities.

Third, the results obtained show that the quantity of the number of group members in marine resource management activities is very high (80%), while 20% stated that the number of members of the existing group is relatively high. Most coastal communities view the number of members in a group as determining the process of marine resource management. Community groups, fishermen groups, tourism awareness groups, and supervisory groups are basic forms of community organizing and mutually agreed-on rules [13]. This is due to three things namely; first, many problems can only be solved by an institution formed together. Second, the group can provide continuity to develop the members' efforts continuously. Third, groups can organize communities to be able to compete with outsiders. In other words, the larger the number of group members, the stronger the development and sustainability of the business.

Forth, the results indicate that the benefits of the existence of social organizations are very high (60%), while 40% state that the benefits of social organizations are relatively high, and the rest say 20% are moderate. Social organizations are associations formed by the community, both legal entities and non-legal entities, which function as a means of community participation in regional development [14]. Most coastal communities view that social organizations, both economic-oriented and other related institutions, that exist in coastal areas play an essential role in improving the living standards of coastal communities. They also view that without social organization, coastal communities will work and live alone without anyone fighting for and protecting their interests.

Fifth, the results show that the government's role in coastal community activities is very high (80%), while 20% stated that the government's role is relatively high. The role of the government, especially in the economy, is to reduce the impact of market failures so that the goals of welfare and justice in society can be created. Most coastal communities view that the government has facilitated the community to jointly carry out the process of developing coastal areas. Coastal communities consider that the government plays a vital role in periodically monitoring the quality of the coastal environment, both in the land, brackish, and sea/coastal areas, where people carry out economic, social, and cultural activities [15]. Thus the government has primary data on the quality of coastal areas to determine the direction of the development pattern of coastal areas. Based on the indicators that make up the input aspect, it can be seen that the five indicators are in the very high category. This shows that the input aspect of the coastal resource management model in the Central Buleleng region is included in the very high category.

3.3 Process aspect evaluation in Marine Management Model

The process variable consists of five indicators: management planning, members contribution, members participation, management implementation, and evaluation of management. The following is an analysis of the input aspects of the coastal resource management model.

First, the results indicate that the implementation of marine resource management planning is very high (90%), while 10% stated that the planning is relatively high. Planning is selecting or setting organizational goals and determining strategies, policies, projects, programs, procedures, methods, systems, budgets, and standards needed to achieve goals [16]. Most coastal communities view the planning related to marine resource management as very

detailed and holistic. Each coastal community group has determined the management objectives entirely and clearly. In addition, they have also formulated policies or guidelines that direct and simultaneously limit each group member's actions in managing marine resources. Finally, analysis and determination of ways to achieve goals have also been specifically formulated.

Second, the results show that members' contribution to marine resource management is very high (80%), while 20% stated that their contribution is relatively high. Most coastal communities view group members' contributions to each coastal community social organization as very large, especially in terms of commitment, dedication, and material donations [17]. First, managers' commitment can be seen from their responsibilities towards their respective duties in management activities. Second, the management's dedication can be seen from the sacrifice of energy, thought, and time to manage marine resources successfully. Third, many of the group members voluntarily and sincerely donate their facilities for the smooth process of managing marine resources, including donations in the form of finance, fuel, fishing equipment, and communication tools.

Third, the results indicate that members' participation level in the management of marine resources is moderate (60%), while 40% stated that the participation of managers is relatively high. Most coastal communities view the participation of managers as relatively high only at the planning stage, while at the implementation and evaluation stages, it is relatively low. In general, several factors cause coastal community members to be less participative in marine resource management, namely managerial and technical factors [17]. Marine resource management is still seen only as a side activity. This condition causes group members to be less actively involved in group activities, so the managed businesses are not oriented toward future business continuity. This is exacerbated by the lack of marketing expertise members possess, so the processed products and services produced are less economical. In the end, the participation of managers is correlated with the continuity of the social organization. Social organizations with a low level of management participation result in less active business conditions.

Forth, the results obtained show that the effectiveness of the implementation of marine resource management is very high (80%), while 20% stated that the implementation is relatively high. Implementation is the efforts to implement all the plans and policies that have been formulated and determined by completing all the necessary tools needed, who will carry it out, where the implementation is and when it starts. Most coastal communities believe that their abundance of marine resources has been managed very well. The management of marine resources is considered to have been able to maintain the role of coral reefs in supporting the lives and livelihoods of coastal communities. Considering the role of coral reefs, especially fringing coral reefs, is as a beach protector from waves and strong currents coming from the sea. In addition, coral reefs have a significant role as a habitat, a place to find food, a place for care and rearing, a spawning place for various biotas such as a variety of invertebrates, a variety of fish, reptiles, and also a habitat for algae and seaweed.

Fifth, the results obtained from the analysis of data related to the fifth indicator show that the effectiveness of the implementation of marine resource management is moderate (60%), while 40% stated that the effectiveness of the evaluation of management is relatively high. Activity evaluation has the objectives of providing input for planning further activities or programs, providing input for modifying the program, and obtaining information about the supporting and inhibiting factors of the program. Most coastal communities believe that

management implementation evaluation has not been carried out optimally. The main factor that causes the evaluation stage to be not optimal is that the information provided by members is sometimes invalid, especially regarding program performance. So it is unclear what needs, values, and targets for marine resource management programs are to achieve. Based on the indicators that make up the process aspect, it can be seen that most indicators fall into the very high category. Only the participation and effectiveness of the evaluation of the management implementation are included in the moderate category. This shows that the process aspect of the coastal resource management model in the Central Buleleng region is, on average, included in the high category.

3.4 Product aspect evaluation in Marine Management Model

The influence of management on the economy, the influence of management on food availability, the effect of management on health, the influence of management on environmental sustainability, and the influence of management on social conditions are the five indicators that comprise the process variable. The following is an analysis of the input aspects of the coastal resource management model. First, the results indicate that management's influence on the economic conditions of coastal communities is strong (60%), while 40% stated that the effect on the economic conditions is relatively moderate. Most coastal communities view managing marine resources as positively influencing their livelihoods. Products and services from managing marine resources have a relatively high economic value [18] . The superior products produced by the fishing groups are fresh fish, processed fish, and salt. In contrast, the tourism-conscious group offers various tourism services in the form of diving, snorkeling, and trekking. The surplus from the sale of products and services covers management costs and increases people's income.

Second, the results obtained from the analysis of data related to the second indicator show that the influence of management on the food availability of coastal communities is very high, with a percentage of 70%, while 30% stated that the effect on food availability is relatively high. Most coastal communities view managing marine resources as a positive influence on fulfilling their food needs. In particular, the catch of fish from fishing groups can supply the food needs of coastal communities widely, both in quantity and in terms of nutritional adequacy. Given that fish contains a high protein content [19].

Third, the results indicate that management's influence on health is high (80%), while 20% stated that the effect on health is relatively moderate. Most coastal communities view managing marine resources as a positive influence on their health. Their routine management activities can improve the health of the community, both physical and mental health [20]. The implementation of management activities encourages the community to work actively, and at the same time, it becomes a routine exercise every day to maintain community fitness. In addition, working in groups makes it easy for people to mingle and share experiences, thereby reducing mental stress at work. In addition, there is a guarantee of work safety and standard operating procedures that reduce the risk of accidents in marine resource management activities.

Forth, the results indicate that management's influence on the sustainability of the coastal environment is very high (90%), while 10% stated that the effect on the environment is relatively high. Most coastal communities view managing marine resources as positively

influencing their environment. In order to produce products and services with high economic value, community groups work hand in hand to maintain environmental conditions [21]. They are starting from waste management on land to minimizing marine pollution. Community groups have not been able to anticipate waste sent from upstream areas, so at certain times the coastal area is filled with garbage, which reduces environmental health.

Fifth, the results obtained from data analysis related to the fifth indicator show that the influence of management on the social conditions of coastal communities is very high (70%), while 30% stated that the influence on social conditions is relatively high. Most coastal communities view managing marine resources as a positive influence on their lives. Marine resource management activities have high social values, including social interaction, cooperation, work ethic, and implementation of customs [22] . Social interactions that are community-based make social organizations that are formed work with high family ties. Cooperation is also fostered through people's daily work in groups. In addition, a non-materialistic work ethic is seen as the essential impact of management. Coastal communities, in managing marine resources with their groups, have never prioritized personal gain, so all work for the common good without considering the amount of profit that will be obtained. Finally, the implementation of marine resource management is always based on prevailing customs so that the cultural heritage of coastal communities can still be preserved. Based on the indicators that make up the product aspect, it can be seen that the five indicators are in the excellent category. This shows that the product aspect of the coastal resource management model in the Central Buleleng region is included in the excellent category.

The coastal area is one of the human living spaces with various eminent products that can support the lives and livelihoods of coastal communities. Practically the management of coastal and marine resources that have been implemented is already in the excellent category. It is just that some aspects still have weaknesses, especially in the process aspect. In line with this research, Leilani & Restuwati (2016) and Arief (2008) stated that the participation of coastal communities was only high during the planning stage but relatively low during the implementation and evaluation stages of activities [23], [24] . Other research shows that community participation is highly dependent on the availability of time after carrying out the main work [7], [22]. Coastal communities generally have more than one job and are members of social organizations, not their primary job [25].

This research implies that community groups that already exist to manage marine resources need a guarantee for the sustainability of the management model and the certainty of the income they receive. Uncertainty in these two matters has become the basis for implementing the coastal resource management model to become stagnant. In addition, the management of coastal resources into products with a competitive advantage must consider the knowledge of coastal communities as the basis for their management. Thus, increased knowledge will be positively correlated with the sustainability of coastal resource management..

4. Conclusion

Based on the study results, it was found that the model implemented by the coastal community was in a good category. Specifically, the context component is categorized as very good. The input component is considered very good; only the infrastructure indicators are

moderate. Meanwhile, the process component is in the moderate category, especially in the contribution and participation of all managers, which are considered moderate. Finally, the product component of the coastal resource management model is in the medium category, especially those related to the economic and environmental conditions of the coastal area. The implications of this study's results require improving the coastal resource management model, especially the process and product components. Available coastal resources must be managed by actively involving all coastal community groups, and their management needs to focus on achieving community welfare and environmental sustainability.

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