

Adaptive Governance In Terms Of The Limboto Lake Management Network

Muh. Firyal Akbar¹ Alwi², Nur Indrayati Nur Indar² and Muhammad Tang Abdullah²

¹Hasanuddin University, Jl. Perintis Kemerdekaan KM.10, Tamalanrea, Makassar City 90245, South Sulawesi Province, Indonesia & Universitas Muhammadiyah Gorontalo. Jl. H. Mansoer Pateda, Telaga Biru 90222, Gorontalo 96181 Province, INDONESIA

²Hasanuddin University, Jl. Perintis Kemerdekaan KM.10, Tamalanrea, Makassar City 90245, South Sulawesi Province, INDONESIA

Abstract

The purpose of this study was to determine Adaptive Governance in terms of the Limboto Lake Management Network. This study uses a qualitative deductive approach. The results of this study indicate that the analysis of adaptive governance in the management of Lake Limboto in Gorontalo Regency has weaknesses in terms of coordination and synergy of programs related to lake management, especially between the civil sector and the government and the network as a feature of adaptive governance by looking at the flow of resource exchange from each sector as well. implementation has not been effective, especially in the civil sector, each party plays a role in the management of the lake. The AG feature is considered not to fully represent the management of Lake Limboto, especially the Network feature. The NG concept used recommends that in an effort to streamline the management and rescue strategies of Lake Limboto, namely by creating an integrated and integrated special institution so that coordination regarding the Limboto Lake problem can be more centralized.

Keywords: Adaptive Governance, Management Network, Limboto Lake

Introduction

Governance which later became more familiar in public administration known as "Governance" is a concept that is up to date and is still the subject of discourse and research studies by several groups including academics, as stated by Fredrickson (1997) that the term Governance as a theory which brings the spirit that the implementation of government puts forward the principles of synergistic governance which is the latest study in public administration.

The concept of adaptive governance (AG), itself is a concept that was later born carrying the spirit of how governance between the Government, related stakeholders can work together to solve problems with conflicts that occur at different levels in different authorities, such as differences in jurisdictions, sectors, conditions, political cycles of demographic, geographic and cultural differences that develop (Olsson and Gunderson, 2006; Folke, 2005). Adaptive governance is a term that has been used to describe a process of learning through ecosystem monitoring to specific actions, followed by increasing changes in actions based on what has been learned. Adaptive governance is only one of many approaches that governments use to implement policies. It is an approach designed to address the uncertainty inherent in systems in response to change. It has also been seen as an alternative to resource management that focuses on optimizing certain aspects of the ecosystem according to current economic needs or political goals (Cosens, 2012).

Adaptive governance/AG has been suggested as a suitable approach for ecosystem management in a changing environment. It rests on the assumption that landscapes and seascapes need to be

understood and managed as complex socio-ecological systems rather than as ecosystems alone. Adaptive governance develops the capacity to manage multiple ecosystem services and respond to changes across ecosystems and enables collaboration across different interests, sectors and institutional settings (Schultz et al., 2014).

Adaptive Governance capacity as a concept which was later born from several cross-sectoral experts in environmental, political, and public administration who then focused on how the Government's ability to respond to environmental change issues occurred very quickly by involving related institutions and stakeholders including civil society (Eakin, 2011; Olsson, 2007; Nelson, 2007).

In terms of the development of studies related to AG, there are actually several studies with similar study areas, namely, Adaptive Management (AM), Collaborative Management (CM) and Adaptive Co-Management (ACM), but there are at least 3 assumptions that form the basis for AG to be more up-to-date than the perspective of AG. Others, described by Brunner, et.al, (2005) argue that First, "scientific management" as the basis of the other 3 perspectives is inadequate in analyzing the nature of "uncertainty" inherent in the dynamics of ecosystem management; Second, the other 3 perspectives are very difficult to be implemented due to the short-lived political nature associated with modern political cycles (Allen & Gunderson, 2011); and Third AG uses a network capable of coordinating many adaptive management learning processes across levels of government that form a complex social system in which management objectives are set. (Folke et al. 2005).

It was further stated that the uncertainty associated with global environmental changes, including climate change and major changes in land use, environmental management systems in the future must be highly adaptive. Governance systems, particularly those that are top-down, country-based, rarely match the relevant scale of ecological complexity, especially in the face of rapidly changing environments (Cumming et al. 2006). Centralized governance through top-down directives or command-and-control policies often fails to provide effective solutions to highly contextual situations, and also often fails to coordinate governance across large-scale ecosystems across multiple jurisdictional boundaries (Lemos & Agrawal 2006). . In response to this, a growing number of bottom-up approaches to governance have emerged through local actor groups, social networks, and various collaborations. found in the Adaptive Governance approach (Weber 2003, Brosius et al. 2005).

Of the many issues regarding environmental damage that are currently occurring, the environmental damage that has occurred in Lake Limboto, precisely in Gorontalo Regency, is an object of urgent problems to be studied. How not Lake Limboto is currently in the "rescue" phase to restore the function of the lake as a reservoir for water flow from several large rivers flowing in Gorontalo Province. Lake Limboto is located in the central part of Gorontalo Province, namely in the Gorontalo City area and in the Gorontalo Regency area.

Lake Limboto as a regional asset of Gorontalo Province which functions as a provider of clean water, habitat for plants and animals, regulator of hydrological functions, prevention of natural disasters, stabilization of natural systems and processes, producer of biological natural resources, producer of energy, means of transportation, recreation and sports, fisheries resources (both aquaculture and capture fisheries), and flood control, as well as research and education facilities. In contrast to other lakes, Lake Limboto is not like a natural pond, its surface is a large brackish area overgrown with aquatic flora such as lotus, sedge, water hyacinth and others. Apart from having witnessed centuries of history in supporting the people of Gorontalo, whether we realize it or not, most of the inhabitants of the Lake coast depend on this freshwater source for their lives, either as fishermen, fish cultivators,

or as fish traders. The potential of these freshwater fish has contributed a lot to the welfare of the people living around the lake. Socio-economic conditions and institutions of fishing communities on the coast of Lake Limboto show that around 30-64% make a living as fishermen, with the types of fishing gear used include bibilo, tiopo, amelo, olate, bunggo/bubu, gillnet, net and sero. Lake Limboto is classified as eutrophic waters with production potential ranging from 269.7932 – 589.9142 kg/ha/year (Krismono et al., 2017).

The current conditions regarding the problems that exist in Lake Limboto are actually almost the same as several lakes in Indonesia, but what is currently happening in Lake Limboto by several experts who are concerned with conducting studies and research on Lake Limboto are now considered worrying (Nusantari, 2010; Hasim, 2011). The rate of siltation of the lake due to erosion from the rivers that empties into the lake is very large. In a period of 74 years (1932-2006) Lake Limboto was reduced to 3000 Ha with an average depth of 2.5 m, from the previous area of about 7000 Ha and a depth of 30 m. The silting of the lake causes the appearance of plains, both in the middle of the lake and on the shores of the lake (BWS II, 2019). Lake Limboto shows visible degradation from silting, pollution, and occupation of the Lake area by the community. Lake Limboto includes lakes that experience heavy sedimentation and a reduction in area as stated in the Journal of Natural Resources Research and Development (2006) that lakes that experience heavy sedimentation include Lake Tondano, Tempe, Limboto in Sulawesi, Lake Jampang, Semayang, Melintang in Kalimantan, Lake Rawapening in Sulawesi. Central Java and other lakes experience light sedimentation.

On the other hand, since 1983 the Government through the National Land Agency (BPN) has issued certificates of 352 (three hundred and fifty two) parcels of various sizes for printing new rice fields, 52 (fifty two) parcels or an area of 257,250 m² of them, as indicated in the Lake Limboto area, Gorontalo Regency. The 52 parcels of land certificates are located in one village, namely Buhu Village, Telaga Jaya District with an ownership area of between 1,460 m² to 33,100 m² (BPN Data for Gorontalo Regency, 2016).

Furthermore, hydrologically the water catchment area of Lake Limboto consists of two parts, namely the upstream part which is a hilly area and the lowland area which is a water reservoir area. When the upstream part is cut down, rainwater will flow to the areas below. Due to the shrinking of the water catchment area, large floods often occur and inundate housing around Lake Limboto because the storage capacity has decreased. The rivers in the Limboto watershed also experienced an increase in flooding both in frequency and quantity of discharge and sediment transport, (Nusantari, 2010), and the real impact of the above was the big flood in 2016, which was felt the most by the community because it almost submerged all vital areas. Gorontalo Regency due to the overflow of Lake Limboto.

The legal standing of the management of Lake Limboto has been stated in Regional Regulation Number 1 of 2008. Regional Regulation Number 1 of 2008 on the management of Lake Limboto is stipulated by the Gorontalo Provincial Government with the objectives of: (1) preventing damage and rehabilitating the lake; use the Lake for the benefit of the community in a sustainable and environmentally friendly manner; and preserving the functions of the Lake; (2) realizing integration and developing cooperation in lake management; (3) improve knowledge and skills, independence and community participation in lake management; (4) maintain the function of Lake Limboto and the Limboto watershed as a component of environmental sustainability, flood control, fishery resources, tourism and recreation objects, transportation facilities, places of education and research, (Dungga, 2018).

This policy is then related to Government policies in the form of Government Regulation No. 121 of 2015 concerning Water Resources Management which regulates planning, management of utilization and control of water damage. More specifically, the Gorontalo Provincial Government has issued Provincial Regulation Number 9 of 2017 concerning the Spatial Plan for the Limboto Lake Province Strategic Area which aims to realize the Limboto Lake Area as an integrated center for sustainable environmental development in a harmonious and optimal spatial planning system by prioritizing conservation and fulfilling the power of environmental support and capacity, towards Lake Limboto Lestari.

In fact, the Gorontalo Provincial Government realizes that Lake Limboto is a strategic resource for this area. Therefore, the Gorontalo Provincial government has actually prepared a Master Plan for Lake Limboto as a reference for various parties in preparing programs for Lake Limboto. The vision for the management of Lake Limboto is stated in the Master Plan for the Management of Lake Limboto. In this document, it is stated that the vision for lake management is Lake Limboto sustainably in 2015. The vision is a will that will be realized in the future. Efforts to achieve the vision that has been formulated require a management mission as strategic steps, as follows: First, to restore and maintain the functions of the lake in a sustainable manner for the welfare of the people; Second, raise awareness and independence of the community in lake management, and third, create coherence in lake management policies.

The description of the mission provides an interpretation that law enforcement, supervision, lake management institutions and integration have not become a firm orientation in lake management. In fact, to carry out restoration of the lake ecosystem requires the support of effective law enforcement, responsible use, maximum supervision and integration of planning, programs and activities between stakeholders. Many activities that take place in the Lake area require law enforcement. The occupation of the generated land on the outskirts of the lake by residents and the use of the lakeside area for settlements. Utilization of marginal land for intensive agriculture and illegal logging in upstream areas (Hasim, 2011).

Institutional development is one of the main programs in the management of the Lake Limboto master plan version. The institutional conception should also be contained in the mission description, so that the concept becomes the ontological basis of the program. Thus, the ontological, epistemological and axiological threads of institutional concepts can be seen in the context of saving Lake Limboto. But on the other hand, important institutional issues in the Lake Limboto master plan fail to be concretely stated in Regional Regulation (Perda) Number 1 of 2008 concerning Management of Limboto Lake, and Regional Regulation Number 9 of 2017, as legal products of existing policies. Regional Regulation Number 1 of 2008 concerning the Management of Lake Limboto, for example, has not explicitly explained the institutions, division of authority, roles of sectors and actors in the management of Lake Limboto. It has not been explicitly explained about the function of coordination by the agency, agency that manages the environment at the provincial and district/city levels. The mandate was then considered relatively weak to solve the complex problems in Lake Limboto, so it was relatively ineffective. On the other hand, institutions are important because they bring together various stakeholders and actors to coordinate. Institutions also regulate the rules of the game between stakeholders, including the imposition of sanctions when violations occur. Various overlapping activities occur in the Lake area, one of which is a form of weak coordination. This condition illustrates that institutionally the management of Limboto Lake is not yet clear on the direction of coordination. Each agency has an agenda according to its sector. In fact, often between sectors show activities that

do not support each other in relation to the sustainable management of Lake Limboto, this is in line with the results of Akibu's research, (2017) which states that the lack of coordination and synergy between programs between agencies has also contributed to the acceleration of the process of silting and narrowing of the lake. , including land certificates arising from Lakes and ineffective aid programs that lead to community dependence on government assistance.

Damage to Lake Limboto as an ecosystem resource is not a single process. As an illustration, at the central level it is still unclear which institutional authority is responsible for the lake problem in Indonesia. The Ministry of Environment through its former Minister Siti Nurbaya also admitted that the implementation of integrated lake management is currently being carried out sporadically, partially and sectorally, the process is not running optimally, this he conveyed when holding a national coordination meeting to save the lake which was attended by 11 related ministries such as the Ministry of Environment and Forestry. PUPR, Ministry of Environment, Bappenas, Ministry of ATR/BPN/, BNPB, Ministry of Tourism, Ministry of Maritime Affairs and Fisheries in March 2019 in Jakarta. The existence of 11 related ministries in saving the lake illustrates that indeed the efforts to manage and save the lake have not been under one coordination, thus allowing for overlapping authorities, policies and executions in the field.

There are many things that become the background for the destruction of the Lake environment, and it takes place in a complex manner. The phenomenon of the big flood that occurred in 2016 became one of the concrete evidences of the unpreparedness of all parties in dealing with these conditions, causing considerable material and non-material losses at that time. The problem became more complicated when the handling of floods due to the overflow of Lake Limboto at that time required clarity of the actors who had to be responsible and who had to be involved in an integrated coordinating framework and clear duties of each actor. The problem of the nature of the bureaucracy (and policy) that has been patterned reactive is even more exacerbated by the lack of clarity of responsibilities, mismanagement and miscoordination between actors. The relatively poor handling performance lags have the opportunity to present a positive correlation to the magnitude of the socio-economic impacts that arise (Purna & Ibrahim, 2017).

The results of a brief interview conducted by the author with several researchers of Lake Limboto, and the Sulawesi II regional river hall illustrate that what has been carried out by the Gorontalo Regency Government in efforts to manage Lake Limboto through the related SKPD tends to be carried out without coordination. Furthermore, the involvement of the private sector in the form of a work contract then does not allow the involvement of other stakeholders to cooperate in efforts to save the lake. From the side of the people around the lake themselves, they feel confused about what activities to do because of the lack of trust and responsibility given by the government to them.

Likewise, the control and maintenance of Lake Limboto is fully handled by the Gorontalo Provincial Government in collaboration with relevant agencies that have the power to use the budget, in this case the Watershed Management Center (BPDAS) and the River Basin Center (BWS), in coordination with the Regional Development Planning Agency. Gorontalo Province, resulting in overlapping interests and work so that it is assumed to result in unclear authority in terms of the management of Limboto Lake, so that what happens next is the management of Limboto Lake, about who does what, where and how, does not have a basis or guideline that can be used as a reference. which allows stakeholders to play an active role.

Several descriptions of the problems that have been described show that currently the management of Lake Limboto is in dire need of serious attention in terms of centralized institutional responsibility. The basic assumption related to this statement is that the management of Lake Limboto is still partial so that both at the Central level through several related Ministries, Provincial Levels and City Regency Governments, there is a lack of synchrony in the execution of activities related to the management of Limboto Lake itself. The problem of coordination, overlapping authorities and differences in handling in terms of policies then became some of the things that became the impact of this reality.

If we return to the concept of governance, especially in the concept of adaptive governance, there are things that have not been implemented and these require answers for future solutions. As revealed by Berkes (2007), that to see adaptive governance itself, it must be seen from 3 features/indicators, namely the motivations/issues of each party participating in a governance; Furthermore, there is a structure that focuses on discussing the coordination system that is built both at the horizontal and vertical levels and the network that looks at how the exchange of resources occurs between stakeholders in a governance system. These are some of the things that later became the author's study material to see the adaptive governance capacity, especially the Gorontalo Regency Government in the management of Limboto Lake.

Furthermore, it is related to the condition of the management of Lake Limboto as the phenomenon previously described regarding the ineffectiveness of management because there is no centralized agency or institution that can fully coordinate the existing agencies and implement programs related to the management of Lake Limboto, thus causing ineffectiveness. in the management of Limboto Lake itself. In a further theoretical perspective, this is explained by experts who are concerned with studying the problem of how network governance or more familiarly called network governance, which in this study later became an element of novelty because it had not been disclosed in the previous AG concept.

Network governance is based on the basic concept of the network itself. Network theory focuses on the pattern of interaction between parties, both individually and collectively (Alwi, 2018). Network theory is based on the assumption that the relationships between actors are important and interdependent. In a more operational sense it can be said that the actors will not get their respective goals without an exchange of resources owned by each actor, so they are very collective and interdependent (Rhodes 1997; Alwi, 2018).

The network governance approach emphasizes how to determine effective strategies that are built between autonomous units that exist in an institutional structure to achieve a common big goal. This structure is consensus and built on the basis of the same interests and vision and on a voluntary basis, in which there is a negotiation process and in the end is expected to run by utilizing the resources owned by each party (Provan & Kenis, 2008).

The network governance approach is taken by researchers as one of the things that will be measured to see how the phenomenon of Lake Limboto management so far tends to be partial, lacks coordination, and there is overlapping authority due to the absence of an integrated institution for the management of the lake itself which causes it to be less adaptive. Government in lake governance that has not been specifically explained in the concept of adaptive governance. This is also used as a novelty in this research in terms of theory development.

Research conducted by Hilma & Holi (2016) with the title Study of the Adaptation Capacity of Pekalongan Coastal Communities to Rob Flood Vulnerability. The results of this study explain that the level of adaptive capacity is influenced by the level of education and income. At the community level, the level of adaptive capacity is determined by the community's ability to improve infrastructure. The level of adaptive capacity is also determined by the existence of the organization and the ability to raise funds.

Another study was also conducted by Saut Sagala and Irene (2017) with the title Adaptive Capacity of the Regional Government of Indramayu Regency in Responding to the Impact of Climate Change. The results of their research indicate that the level of capacity of the local government of Indramayu Regency has policies, programs, and activities that are indirectly climate change adaptation and mitigation measures. Planning and implementation of programs and policies designed by each agency is basically a step to overcome the problems that occur in Indramayu Regency in each sector.

Related to research on the Limboto Lake locus, there are studies that have been carried out by several previous researchers, for example by Hasim (2018), which raised the title of research on Political Ecological Perspectives on Limboto Lake Management Policies. The results of his research explain that regulations related to the management of lakes in general and Lake Limboto in particular are still weak in the context of integration, harmonization, and problem focus. Another study conducted by Rifka (2017), with the research title Implementation of Limboto Lake Management Policies, the results of his research show that the sub-optimal coordination and synergy of inter-agency programs have also contributed to the acceleration of the process of silting and narrowing of the lake area, including land certification arising from lakes and lakes. ineffective aid programs that lead to community dependence on government assistance.

From several previous studies that are relevant to the research theme that will be raised by the author regarding the focus of adaptive governance and the locus of Daau Limboto, it shows that there are some significant differences with the research that will be raised by the researcher. Whereas the first several studies do not specifically examine how the concept of adaptive governance involves three pillars of governance, namely the Government sector as the leading sector, the private sector and civil society; Second, research on adaptive governance related to the Lake problem has never been done; Third in this study will also focus on the discussion of network governance using a network governance approach. The research location in the research conducted is in the province and district of Gorontalo. The purpose of this study was to determine Adaptive Governance in terms of the Limboto Lake Management Network.

Materials and Methods

The implementation of this research will use a qualitative deductive approach. The main reason for this approach was chosen because this study seeks to find out, describe, and analyze the reality of the events studied so as to make it easier for the authors to obtain objective data in order to know and understand the adaptive governance capacity in the management of Lake Limboto in Gorontalo Regency.

Results and Discussion

Features of Adaptive Governance in terms of Networks in Limboto Lake Management

The next adaptive governance feature is networking. Networks are an instrument combining several actors to work together and interact to achieve a common goal (Kickert et al., 1997; Rhodes 1997).

The network in question is a pattern formed from multi-stakeholder involvement in the management of Lake Limboto in Gorontalo. Networks in adaptive governance as expressed by Berkes (2007) are defined as a forum in which there is a process of exchanging resources owned by each stakeholder. The network also aims to establish communication lines that can be illustrated into several general functions such as opening the way for actors (non-government) to public policy making (Channeling access to decision-making processes), consultation, negotiation, and cooperation instruments between actors both in the formulation and implementation of a policy. policies, especially those related to common problems such as environmental degradation.

Perceptions of environmental degradation and efforts in resilience in the form of government adaptation, presumably lead to the ideal conception of interactional networks between various stakeholders. In this regard, the governance perspective becomes an option because it offers a complex view as well as the complexity of the problem. Resilience efforts for the Government are very important to prepare if at any time something unexpected happens, such as a disaster. Therefore, careful planning and adaptive strategies are needed in preparing these things. Disaster management efforts in the concept that involve three sectors namely government, private and community. Sharing responsibilities between the three sectors requires transparency and accountability actions to build a trust between the three which will serve as a binder of performance between them, not only in disaster management efforts, because what is more important is disaster prevention. (Wijaya, 2007).

Synergistic involvement in the form of a network of the three pillars of governance is the main focus of emphasis. With governance, the values and practices of public administration are no longer dominated by the government sector (Dwiyanto, 2004; Fredrickson, 1997). The existence of requirements and guarantees for the creation of a synergistic network at the same time reflects a democratic multi-actor relationship. In addition, in the management of Lake Limboto, for example, the network can be interpreted as a relationship that can be built between stakeholders based on the resources that can be provided for the sake of saving the lake. Through the perspective of adaptive governance, the level of adaptation of the government as a leading sector can be measured from knowledge of the issues and motivation of stakeholders as well as the exchange of resources that occur or may occur.

In looking at the Limboto Lake management network that was formed, first the stakeholder positions will be presented, which can be seen in a platform formed by the Gorontalo Regency Government that has been designed by researchers, as an illustration of how the network is in the process of exchanging resources. The following table presents processed data about the position of stakeholders in the lake management platform which has been presented in the previous discussion regarding the structure formed and the relationship that connects the existence of these stakeholders on the platform based on activities and obligations in several regulations.

Table 1. Position of Stakeholders and Linking Relationships

Stakeholders	Stakeholder position in multistakeholder platform	Relationships that connect
--------------	---	----------------------------

Civil 1. Local people 2. General public 3. Academics 4. NGOs	inside outside Variative inside	<ul style="list-style-type: none"> - Government policy - Programs - Activities Related to Lake Rescue Efforts
Private <ul style="list-style-type: none"> - PT SMS - PT Bumi Karsa - PT Tamael Grup - PT Nindya Pratama Gorontalo 	Inside Inside Inside Inside	<ul style="list-style-type: none"> - Employment contract
Public <ul style="list-style-type: none"> - OPD Gorontalo Regency Government - OPD Gorontalo Provincial Government - Central Government Vertical Institute 	Inside	<ul style="list-style-type: none"> - Policy - Tupoksi, - Synergy and Coordination,

Source: Results of research interpretation after processing

Table 1 illustrates that each sector involved in the management of Limbot Lake is in the management and rescue of the lake itself, meaning that the lake problem is the shared responsibility of each party. The exchange of resources in the network is determined by the position of each stakeholder in the platform structure that is formed and affects the obligations of stakeholders in exchanging resources.

Table 2. Civil Sector Stakeholder Resources

Stakeholder type	Category	Sumber daya
Civil	<ul style="list-style-type: none"> - Local people - General public - NGO - Academics 	<ul style="list-style-type: none"> - Strategic issues - Data and Information - Skills - Experts

From table 2 it can be seen that in civil stakeholders several parties can play a role in providing resources in the form of information and strategic issues about Lake Limboto and how to manage it. The form of this information can be in the form of primary and secondary information about the condition of the lake. Primary information related to the geographical condition of the lake, conditions related to the water in the lake, the content in the lake, the flora and fauna of the lake and the daily activities of the people who make the lake a source of livelihood. Secondary information can be in the form of local cultures related to the Lake and supporting activities carried out related to Lake Limboto.

Information that can be taken from the community both directly and indirectly is related to the social activities of the Lake community itself, for example in positive terms related to the water activities they do, namely capture fisheries and aquaculture businesses, other businesses such as opening restaurants, utilization of water hyacinth plants for fertilizer and handicraft businesses, tourism potential, and utilization of lake products that can have an impact on people's economic income. Information that can be retrieved that seems negative is of course related to the activities of the community around the lake such as land use for settlements, catching lake products with methods

that are not environmentally friendly (use of karmbah; use of electric tools; fish bombs and others), excessive use of pesticides around the lake area, the lake as a place for some people's garbage disposal and some other negative behavior. Some of these phenomena can then be used as strategic issues in seeing opportunities for better Limboto Lake management if the articulation of these issues can be backed up in a good policy by the Government.

From the results of the analysis of researchers in the field regarding the exchange of resources that occur in the management concept of Lake Limboto so far, it is the lack of education for the people around the lake itself in understanding the conditions of environmental degradation that occur. On the other hand, it seems that the placement of the community as the object of the program so far by the Regency Government has resulted in apathy to be able to contribute to saving the lake. The results of interviews with several surrounding communities illustrate that their real involvement is still lacking in the efforts carried out by the Gorontalo Government, only activities that are meeting with the same content that make them seem to accept what the Regional Government will do next. Whereas the community should be actively involved seeing that their quantity in the Lake area is quite massive. In the context of strategic issues regarding the environment, the local community also has economic and cultural interests which should be understood by the leading sector as a priority in the Limboto Lake management/rescue strategy. This is because the local community is the party that will get the impact directly. In terms of social power, the people of Lake Limboto also have Local Genius and knowledge or let's say local wisdom that must be given space in the dialectic process of the cosmology of society and nature. What is important then is that some existing community personnel actually have the potential to be empowered, both in terms of expertise/skills, as well as from the expertise possessed which can actually help the Government to implement programs related to the management of Lake Limboto. For example, what researchers found in the field was the manufacture of organic fertilizer using water hyacinth plants around the lake which could be produced simply by the people around the lake.

In addition to local communities, NGOs also have a big role in disaster mitigation because they are considered capable of bridging the interests of the community with government institutions or private stakeholders in policy processes. The existing NGO resources are people who understand the concept of the environment and the problem of the lake because those in it are none other than the academic community from several campuses in Gorontalo. This fact can also be seen from the point of view of the flow of institutionalization of social interests, with the consolidated function of NGOs being able to actually summarize the interests of the people who are geographically scattered in several separate areas, therefore, the routine exchange of information between communities and the community and other parties. can be pursued by NGO mobility resources that can move in the dimensions of social space and in the policy dimension (Herren & Izu, 2002).

Furthermore, it can be seen that the determination power of NGOs in the formal legal realm can turn into an important resource for the civil sector conceptually. However, the transfer of knowledge that occurs between NGOs and the Government as the leading sector is also experiencing obstacles due to the work structure that places NGOs in "lower" functions, making NGOs accommodated on a momentum basis. In fact, to be able to exchange resources, there must be a balanced platform that supports the obligation to provide or receive resources from each stakeholder. Even so, the results of interviews with several people representing NGOs and academic observers related to Lake Limboto illustrate that there have been many activities related to efforts to save and preserve the lake that have been carried out, both through research, training discussions and dialogues in several local,

regional, and regional forums. National to International. According to them, the activity, whether supported by the district government or not directly supported by the local government, is still carried out as a form of responsibility that Lake Limboto is a shared responsibility, especially the people who inhabit Gorontalo.

The role of the Gorontalo academic community, especially academics from inside and outside Gorontalo related to Lake Limboto, is also of great concern, this can be seen from several research results that have been carried out and published both in books, in journals and in proceedings in National and International levels, which indicates that the theme and locus of research on Lake Limboto is an interesting topic to discuss. Researchers through the Perish or Perish (PoP) application tried to search using the Google Scholar (GS) database related to keywords and publication titles using the word Danau Limboto and obtained the publication results of 200 articles for the 2000-2021 publication period. An interesting fact then is that of the many articles, most of which are research results/activities, it turns out that they have not been able to have a significant impact on policy makers in this case the Regional Government to use the research results as material for making strategic steps in policy products. /program in an effort to effectively manage Lake Limboto.

The second resource is the private sector. The private sector in the management of Lake Limboto as stated in the previous discussion is in the position of the support system which has been the trusted party to carry out the Lake Limboto revitalization project. With all the resources owned by the private sector, Lake Limboto is expected to survive with all the complexities of problems related to environmental degradation.

Table 3. Private Sector Resources

Stakeholder type	Category	Resource
Private	All PT related to Lake Revitalization Project	<ul style="list-style-type: none"> - Funding - Revitalization Plans and Programs - Infrastructure Facilities - Technology - Experts

Source; Research Results After processing

Based on table 3, it can be seen that the private sector has resources that range from funding support, plans and programs, facilities to experts used in efforts to manage Lake Limboto, especially the issue of revitalization. In Lake Limboto management activities, several companies identified as being involved in the management of the lake, in this case carrying out the Limboto Lake revitalization program, have carried out their duties throughout 2014-2020.

The activities of the private sector, especially in the work on the Revitalization project which has been started since 2014 were carried out after a work contract was carried out together in this case in several related ministries, namely the Ministry of Public Works and Public Housing, through the Directorate General of Water Resources in coordination with the Sulawesi River Basin. II Gorontalo. PT. SMS, for example, has resources in the form of heavy equipment facilities to carry out dredging to restore the depth of Lake Limboto and lift materials that cause sedimentation at the bottom of the lake. In addition, the experts who have become a good capital for the process of revitalizing the lake.

Several other companies from the data obtained are also involved in several Limboto Lake Revitalization Programs, such as PT Tamael, PT Nindya Karya and PT Bumi Karsa. PT Bumi Karsa for

example this company is involved in a partnership with BWSS II Gorontalo with several types of work that have been carried out including dredging work; Lake outlet canal work; Lake embankment works; sediment control building works; bridge construction and maintenance of access roads.

From field investigations and interviews with several parties related to the presence of private parties in the management of Lake Limboto, it shows that up to now there has been no negative impact on private silver related to the exploration of Lake Limboto itself, because the condition of the Lake is also purely as a buffer zone. , conservation areas and areas that are highly guarded by the Government. Opportunities for companies or corporations to take advantage of the existence of the Lake for private interests are almost minimal. This fact shows that in terms of exploiting the potential that exists in the Lake economically, it has not attracted the private sector to be able to invest in the development of Lake Limboto. Whereas Lake Limboto in terms of tourism potential is very promising if there is a desire to do that. However, once again, the existing condition of the Lake, which is currently in a critical phase in terms of the Lake's own environment, makes entrepreneurs seem reluctant to do so.

Corporate privatization conceptually should be responsible in terms of compensation for activities carried out from activities or project-related activities carried out either directly to the community or in the form of environmental conservation and rehabilitation (Junaedi, J2020). Private/corporate commitment should be increased through the implementation of Corporate Social Responsibility (CSR) as well as community social activities that can be carried out in various forms. The support provided can be in the form of funds (capital), loans, promotion costs, personnel (technical guidance from experts), equipment/technology, or access to information about disaster knowledge. The information on the implementation of CSR in terms of the management of Lake Limboto is not yet clear. Researchers tried to explore from several parties, both from the local government, the Lake community and companies involved in the revitalization activities in Limboto Lake. The conclusion is that up to now the CSR program, especially from the companies located in the Lake, is still not being realized even though it has been promised by the company.

This explains that the CSR program is still not going well, this is an unfinished homework and the local government has a responsibility to clarify this issue, so that the private sector can also fulfill their responsibilities well and of course will greatly contribute CSR funds for empowerment. public. Even though apart from the concept of CSR which is based on optional voluntary basis, as stated by Kotler and Lee (2005), CSR activities are then not solely the responsibility of the company to pay taxes or the company's compliance with labor laws, but more than that. there are ethical and philanthropic values that accompany it.

The local government sector is the most comprehensive party in terms of its resources. In addition to its position as a policy maker and determinant for all matters related to the management and rescue programs of Lake Limboto, the Government, be it the Gorontalo Regency Government but also the Provincial and Central Governments also act as implementers in the execution of existing programs from each work unit.

Table 4. Public Sector/Government Stakeholder Resources

Stakeholder type	Category	Resource
Public	- Gorontalo Regency Government	- Budgeting - Policy/Program - Empowerment

	<ul style="list-style-type: none"> - Gorontalo Provincial Government - Ministry Vertical Institute 	<ul style="list-style-type: none"> - Infrastructure - Permissions - Experts - Technology - Supervision
--	--	---

Source: Research Interpretation Results After processing

The data in table 3 shows that the public sector is the owner of the key resources for the management and rescue measures of Lake Limboto. With all the authority possessed by the Government as the leading sector, it can actually design the existing pattern because the governance process whose umbrella is policy is in their position. The programs set by the related OPDs pave the way for the implementation of the Limboto Lake management and rescue efforts, with the support of existing budgetary sources, of course, they can facilitate the existing programs. Likewise, related to the Government's attitude in minimizing the damage to the lake, both naturally occurring due to climate change and damage caused by human intervention that occurs around the lake area, inherent monitoring of these phenomena and activities can be carried out and the Government can act to issue strict sanctions. if there is behavior that violates the limits that have been set in an effort to prevent damage to Lake Limboto.

In the context of what has happened so far and the results of interviews conducted by researchers with several related informants, it shows that the resources owned by the Government, especially the Gorontalo Regency Government, have not been able to distribute them properly. The availability of resources is not optimally utilized to carry out the distribution process or exchange resources in the concept of good governance. The picture then does not reflect the scarcity of resources that is usually found in several cases as stated by Jones (2004), who explains that the ineffectiveness of the program is related to the scarcity of resources, both budget and other facilities as an element that can accelerate the achievement of goals.

Back to the problem that occurred that the resource distribution process that was not running effectively was actually a separate obstacle in the management of Lake Limboto. Some of the previous explanations also illustrate the problem where OPDs tend to make programs that have the same impression and sometimes repeat themselves. Rehabilitation programs in the form of socialization, trainings and other activities are almost carried out by several related OPDs. Programs in physical form that consume quite a lot of budget, for example the construction of villas around the Lake Limboto area in the Pentadio Resort Area, from the results of direct observations in the field are not utilized properly even their physical condition seems neglected. This is due to the lack of an existing resource exchange process in formulating a good tourism concept in the Lake area itself. Indeed, the concept of tourism related to lakes can be carried out by the Gorontalo Regency Government by cooperating with professional private parties who have good understanding of promotion and marketing, collaborating with campuses that have tourism majors such as Muhammadiyah University of Gorontalo and Gorontalo State University to utilize their human resources in providing education. and literacy for the youth community around the Lake in utilizing the potential that exists in Lake Limboto.

The Concept of Network Governance in Limboto Lake Management

Based on the results of the previous discussion by looking at the realization of concepts in adaptive governance, especially related to the diversity of issues and stakeholder motivations, the pattern of

structures and networks can be observed that basically the management of Limboto Lake in the Lake's effort to prepare and maintain the condition of Limboto Lake from the issue of environmental change and threat of disaster, so far implemented tends to be without a well-integrated pattern of structures and networks. Therefore, the discussion in this section tries to explain how alternative problem solving can be used in maximizing the resources owned by the 3 stakeholders in an effort to manage Lake Limboto.

The main obstacle based on the researcher's findings from the results of observations, interviews, and FGDs that have been carried out for the management of Lake Limboto are classic problems that can be categorized as macro types such as miss coordination and lack of synergies between structures within stakeholders, not being distributed and exchanging resources between stakeholders. well in the network concept is also a fairly urgent problem in lake management.

Researchers use the concept of Network Governance, to see the phenomenon of problems that occur, because the assumptions of researchers from the results of initial observations and after carrying out existing research indicate that some of the problems mentioned earlier occur because there is no formal and well-structured standard pattern. in an institution, for example, which can regulate the role of each of the existing stakeholders. This is important then because so far from the results of research it has been found that lake management tends to be carried out sporadically and partially, especially from the government which is divided into types of authority and functions. The adaptive governance approach related to network features only reveals a general picture of the network that has occurred so far, even though the results of the research show that a network arrangement is needed in a development concept within the network itself, and the one that can answer that is the concept of network governance.

Network governance (NG), born from the development of the new public governance paradigm, commonly known as other editors with network governance/network governance, is a pattern of cooperation that has been recognized as an important form of multi-organizational governance. Network governance / NG can be interpreted as a combination of structures within the government or simply can be interpreted as a form of cooperation between government agencies.

The network governance approach emphasizes how to determine effective strategies that are built between autonomous units that exist in an institutional structure to achieve a common big goal. This structure is consensus and built on the basis of the same interests and vision and on a voluntary basis, in which there is a negotiation process and in the end it is hoped that it will run by utilizing the resources owned by each party. Furthermore, network governance requires reputation, trust, reciprocity, interdependence and mutual benefit (Provan & Kenis, 2008; Farmaki, 2015).

In the context of the management of Lake Limboto related to network governance, the researcher uses the indicators proposed by Provan and Kenis (2008), in looking at the possibility of effective network governance, namely, the level of trust, the number of participants in the network, consensus on network goals and the need for Network Level Competence. The following will explain each of these indicators in accordance with the results of research obtained in the field.

Trust

The level of trust between stakeholders in governance is a necessity that must be put forward in an effort to achieve the implementation of a good program. In looking at the level of trust, the researcher divides the assessment into three aspects, namely from the planning, implementation and evaluation

aspects of Lake Limboto management. In the context of the management of Lake Limboto, civil parties consisting of local communities, NGOs and academics view that what has been planned to be carried out by the Regional Government, especially Gorontalo Regency in terms of revitalizing the lake has not received such high trust from what has been implemented so far. , although it is considered as the main task of each OPD to carry out activities to save the lake and they realize the condition of the lake which is currently very alarming, it must be handled by the government from the local to the central level, the agreement that was built was born from formal activities such as meetings, meetings and discussions related to lake management. Unfortunately, from several later meetings, the civil sector was deemed not to have carried out optimally by the Government, especially the Gorontalo Regency Government. On the other hand, the Government as the leading sector also gives high hopes to the civil society to assist them in the success of existing programs, although it is acknowledged that the involvement of the civil sector has been lacking so far, even in some OPDs, it is considered that the civil sector, in this case the community, plays a significant role. active in environmental degradation in Lake Limboto. One thing that has been revealed is that the level of trust of NGOs in the Government, especially in terms of supervision, is considered weak where there are still many people who carry out activities that threaten the sustainability of the lake, such as illegal fishing, illegal logging in the upstream sector and the construction of settlements, but it seems that the government has left it alone.

Trust at the level of the private sector both between the private sector and the government sector from the results of the analysis carried out has shown a fairly high level of trust where so far the work given to the private sector in revitalizing the lake has been carried out according to the agreed deadline both in terms of planning and implementation. So far, the private sector has communicated well with the Government, so that almost no complicated problems have occurred in the efforts to revitalize Lake Limboto so far. For the relationship of trust from private parties to civil parties and vice versa from the data obtained there are no significant obstacles because the position of the private sector in Lake Limboto is not for exploration but for accelerating revitalization. Although there are some people who have little hope that the private sector can contribute to the community around the lake in the form of CSR assistance, so far, from interviews with the community, the results have been that there has been no such assistance. Regarding the private sector in its position as a party assisting the Government in efforts to revitalize the management of the lake so far, they have not encountered any obstacles, even they have utilized community resources to be recruited as seasonal workers in the area around Lake Limboto.

Table 5. Trust in the Network Structure of the Limboto Lake Management Stakeholders

Trust			
Activity Category	Government + Civil	Government + Private	Private + Civil
Planning Aspect	Average	High	Average
Implementation Aspect	Average	High	Low
Supervision Aspect	Low	High	Average

Source: Interpretation Results of Research Processed after processing

The interesting thing is actually the trust that exists at the level of each OPD in the Government sector, both between different levels of authority and at the same level of authority. Since Lake Limboto is designated as a priority lake whose condition is very critical, so that in PP no. 13 of 2017 concerning the National Spatial Planning (RTRWN) is set to become a National Strategic Area, so that the Regency/City Government especially in Gorontalo Regency is in a position to really hope that the Limboto Lake affair has become a matter for the Central Government so that it seems that the Regency/City Government is not too euphoric in dealing with the problem. Lake, especially the budget will be regulated by the center. On the other hand, the Gorontalo Regency Government is positioning itself where the authority that can be taken now, should not conflict with Central or Provincial policies. On the other hand, the Provincial Government considers that even though Lake Limboto has become a matter for the Provincial and Central Governments, it does not mean that the Regency Government is releasing this responsibility because the Lake Limboto area is mostly located in the Gorontalo Regency area.

The same condition occurs between the OPD in the Gorontalo Regency Government itself in determining work programs related to Limboto Lake. Even though there is already a Limboto Lake area forum formed by the Regency Government in 2019, interviews with several OPDs show that the commitment of the agreement is difficult to realize properly, due to the lack of agreement between each of these OPDs, even though if it is returned to the concept of trust in the network of trust in the contract agreement (agreement trust) is important to ensure the achievement of the program. Agreement trust as a form of initial agreement agreed by each of the existing actors. Agreement trust (Dowding, 2001) in the concept of a government network explains that the agreement is one of the aspects needed as a step to overcome the assumption of distrust or doubt about other actors.

Trust can not only be seen as a network level concept but also that network governance should be consistent with the density level of trust. In particular, co-governance is most likely to occur in an effective form when trust is spread across networks. Trust doesn't need to be deep. The bond of trust must be solid, so that the perception of trust is shared among and among network members. In the absence of this, shared governance will be ineffective as there is little basis for collaboration among network members (Provan & Kenis, 2008).

Number of Network Participants

The fundamental problem with governance of any network is that the needs and activities of many organizations must be accommodated and coordinated. Of course it is difficult to regulate, because the number of organizations participating in the network will grow, and the number of potential relationships increases exponentially. The main feature of network organizations is their involvement in designing and implementing collaborative programs (Provan & Kenis, 2008).

From the various activities and needs and interests that must be accommodated by the parties involved, it is what makes organizational networks more complex. The Gorontalo district government itself as the Leading sector in the management of Limboto Lake in Gorontalo Regency involves multi actors and multi agencies with their respective roles and all of them are different. The following is the role of each actor and agency in the Gorontalo Regency Government. The data that has been shown in the previous Table 5.6 shows that the management of Lake Limboto involves approximately 23 stakeholders related to their respective roles. This complexity has a positive impact on facilitating the division of tasks that can be implemented in several programs related to Lake Limboto itself, but in practice in the field it seems that each of these stakeholders plays their respective roles without an

appropriate and integrated implementation control so that it creates an overlapping program. The picture then shows that the programs implemented by each agency are almost certainly not able to run effectively and efficiently.

Network Goal Consensus

Consensus aims to enable participating organizations to perform better than when there is conflict, although conflict can also be a stimulant for innovation. The argument has important implications for understanding network behavior, as network members must be responsive to the goals of both the organization and their network. Consensus of objectives has important implications for network governance. There will be considerable differences across networks and network members regarding agreement on network-level goals and the extent to which organizational goals can be achieved in network engagement (Powell et al., 2005; Provan & Kenis, 2008).

In the management of Limboto Lake, a common vision and mission are needed in determining strategic steps regarding Limboto Lake. The direction to do this has actually been carried out by the Government, especially the Gorontalo Regency Government in several meetings, meetings and discussions at both the local and national levels. However, the obstacle again is that there is no forum that regulates the interests of each of the existing stakeholders, making the expected collaboration between these stakeholders in carrying out the program yet to meet maximum results. The agreements that are built also tend to only end up in the documents resulting from the meeting and this is repeated over and over again.

The absence of this integrated institution of course results in the inability to produce clear consensus objectives. This is indicated by the absence of collaborative programs produced as an organizational network. The program related to Lake Limboto that has been implemented so far is a program of each agency, not a program designed from the interaction of organizational networks. Conceptually, members in a network organization should be able to work and avoid significant conflicts and be able to work together to achieve common goals (Provan & Kenis, 2008).

Need for Network Level Competencies

Organizations join or form networks for a variety of reasons, including the need to gain legitimacy, serve clients more effectively, attract more resources, and deal with complex problems. But regardless of the specific reasons, in a general sense, all network organizations are trying to achieve some goals that they cannot achieve independently. Internally, if networking tasks are tasks that require significant interdependence among members, then the need for network-level coordination skills and task-specific competencies will be great, meaning that governance needs to facilitate interdependent actions (Provan and Kenis, 2008).

Network-based organizations, each stakeholder has diverse skills and competencies, so this organization needs to coordinate its capabilities. With an institution formed as a network-based organization whose main task is in the management and rescue of Lake Limboto, it is necessary to coordinate the skills and competencies involved. The following will present an overview of the competencies of each party that can be obtained and can be distributed if a network organization can be formed in the management of Limboto Lake.

Table 5. Potential Competence of Stakeholders in Limboto Lake management (Gorontalo Regency Government Context)

No	Stakeholders	Competence
1	Sulawesi River Region II	Competent in infrastructure planner and executor in flood control
2	Watershed Management Center (BPDAS-HL)	Competent in the preparation of watershed management plans and evaluation of watershed management.
3	Regional Development Acceleration Planning Agency (BAPPEDA) Gorontalo Province	Competent in macro planning and cross-sectoral coordination
4	Gorontalo Provincial Public Works Office	Competent in the Development of Facilities and Infrastructure
5	Environment Agency and Regional Research BLHRD) Gorontalo Province	Competent in planning, controlling and rehabilitating lakes
6	Provincial Tourism Office	Competent in Planning and Development of cross-district tourism
7	Provincial Marine and Fisheries Service (DKP)	Competent in Planning and Formulating Fisheries Sector Policies
8.	Provincial Environment and Forestry Service	Competent in planning, development and monitoring of forest areas
9.	Gorontalo Regency Regional Development Planning Agency (BAPPEDA)	Competent Macro planning and cross-sector coordination of Gorontalo District
10.	Gorontalo Regency Public Works Office	Competent in infrastructure development
11.	Gorontalo Regency Agriculture Office	Competent in planning and development of the Agricultural sector
12.	Gorontalo District Fisheries Service	Competent in planning and development of the district's fisheries sector
13.	Gorontalo Regency Environment Agency (DLH)	Competent in environmental planning and control
14.	Gorontalo Regency Community and Village Empowerment Service	Competent in planning and implementing Community Empowerment in the Lake area
15.	District Tourism Office. Gorontalo	Competent in tourism planning and development
16.	Gorontalo Regency National Land Agency	Competent in Asset Planning and Recording
17.	Forum for the Limboto Lake Region, Gorontalo Regency	Competent in presenting data related to lakes
18.	Higher Education (PT), involved in the Limboto Lake problem	Competent in providing data and research results related to Lake
19.	NGOs: Japesda; Biota Foundation; Limboto Watershed Forum; Forums 45; Leaf Green NGO	Competent in mentoring, empowerment and supervision
20.	Upstream Community (agriculture)	Variative

21.	Lake Fishery Society	Variative
22.	Private Sector (PT SMS; Bumi Karsa; Tamael; Nindya Karya Gorontalo)	Competent in the construction of Infrastructure, Facilities and Infrastructure
23.	All Related Ministries	Variative

Source: Interpretation Results of Research Processed after processing

The four indicators/dimensions of the NG concept in the management of Limboto Lake on how to obtain the effectiveness of network governance have shown that the ineffectiveness of the existing lake management is due to the absence of a permanent forum formed in order to unite all the interests of each stakeholder for the management of the lake. If it is related again to what is the goal of adaptive governance, namely how governance is able to survive in the face of uncertain environmental conditions in the context of the current management of Lake Limboto, it can be categorized that the Gorontalo Regency Government is not ready for this.

Conclusion

The AG feature is considered not to fully represent the management of Lake Limboto, especially the Network feature. The problem that arises in the management of Lake Limboto is the absence of institutions that regulate sector networks and organizations that exist so far, so that the concept of network governance can be a complement as well as a novelty in this research. The NG concept used recommends that in an effort to streamline the management and rescue strategies of Lake Limboto, namely by creating an integrated and integrated special institution so that coordination regarding the Limboto Lake problem can be more centralized. In this case, the researcher recommends the establishment of an Integrated Agency for Limboto Lake Affairs (BTU-DaLim).

REFERENCES

1. Akibu, R. S. (2017). Implementasi kebijakan pengelolaan Danau Limboto. *Dialektika : Jurnal Ekonomi Dan Ilmu Sosial*, 2(1),178-188. <https://doi.org/10.36636/dialektika.v2i1.241>
2. Allen, C. R., and L. Gunderson. (2011). Pathology and failure in the design and implementation of adaptive management. *Journal of Environmental Management* 92:1379-1384. <http://dx.doi.org/10.1016/j.jenvman.2010.10.063>.
3. Alwi. (2018). *Kolaborasi dan kinerja kebijakan (Tantangan dan strategi dalam penentuan dan implementasi kebijakan)*. Yogyakarta: Kedai Buku Jenny.
4. Berkes, F. (2007). Commons in a multi-level world. *International journal of the commons*, 2(1), 1-6.
5. Brosius, J. P., A. L. Tsing, and C. Zerner. (2005). *Communities and conservation: histories and politics of community-based natural resource management*. Rowman Altamira, Walnut Creek, California, USA.
6. Cosens, B. A., and M. K. Williams. (2012). Resilience and water governance: adaptive governance in the Columbia basin. *Ecology and Society* 17(4): 3. <http://dx.doi.org/10.5751/ES-04986-170403>
7. Cumming, G. S., D. H. M. Cumming, and C. L. Redman. (2006). Scale mismatches in social-ecological systems: causes, consequences, and solutions. *Ecology and Society* 11(1): 14.
8. Dunga, W. A., Sulila, I., & Aneta, Y. (2018). Pentingnya aspek hukum pelestarian Danau Limboto dan pemanfaatan eceng gondok sebagai produk kerajinan tangan khas masyarakat desa buhu Kabupaten Gorontalo. *Jurnal Pengabdian Kepada Masyarakat*, 24(2), 617-622.
9. Dwiyanto, Agus. (2002). *Reformasi Birokrasi Publik Di Indonesia*. Yogyakarta: Pusat Studi Kependudukan dan Kebijakan Universitas Gadjah Mada.

10. Eakin, Siri Eriksen, Per-Ove Eikeland and Cecilie Oyen. (2011). "Public Sector Reform and Governance for Adaptation: Implication of New Public Management for Adaptive Capacity in Mexico and Norway", in *Environmental Management Journal* 47, p. 338351.
11. Farmaki, A. (2015). Regional network governance and sustainable tourism. *Tourism Geographies*, 17(3), 385-407.
12. Folke, C, Hahn, T., Olsson, P., & Norberg, J. (2005). Adaptive governance of social-ecological systems. *Annu. Rev. Environ. Resour.*, 30, 441-473.
13. Fredrickson, H. George. (1997). *The Spirit of Public Administration*. USA: Jossey-Bass Publication
14. Hasim, H. (2018). Perspektif Ekologi Politik Kebijakan Pengelolaan Danau Limboto. *Publik (Jurnal Ilmu Administrasi)*, 7(1), 44-52.
15. Hasim, Sapei A, Budiharsono S, Wardiatno Y. (2011). Analisis Keberlanjutan Pengelolaan Danau Limboto. *Jurnal Hidrosfer Indonesia*. 6 (2).
16. Herren Gemmill, B., & Bamidele-Izu, A. (2002). The role of NGOs and civil society in global environmental governance. *Global environmental governance: Options and opportunities*, 77-100.
17. Junaedi, J. (2020). Implementation of Good Corporate Governance (GCG) in the Field of Securing Plantation Assets. *Journal La Sociale*, 1(3), 5-9. <https://doi.org/10.37899/journal-la-sociale.v1i3.110>
18. Kickert, W. J. M., & Stillman, R. J. (1999). *The modern state and its study: New administrative sciences in a changing Europe and United States*. Edward Elgar Pub.
19. Kickert, W. J., Klijn, E. H., & Koppenjan, J. F. (Eds.). (1997). *Managing complex networks: Strategies for the public sector*. Sage.
20. Krismono, K., & Kartamihardja, E. S. (2017). Pengelolaan Sumber Daya Ikan di Danau Limboto, Gorontalo. *Jurnal Kebijakan Perikanan Indonesia*, 2(1), 27-41.
21. Lemos, M. C., and A. Agrawal. (2006). Environmental governance. *Annual Review of Environment and Resources*. 31:297-325. <http://dx.doi.org/10.1146/annurev.energy.31.042605.135621>.
22. Nelson D, Adger WN, Brown K. (2007). "Adaptation to Environmental Change: Contribution of a Resilience Framework". *Annual Review of Environmental and Resources* 32: 395 – 419.
23. Nusantari, E. (2010). Kerusakan Danau Limboto Dan Upaya Konservasi Melalui Pemberdayaan Masyarakat Dan Peran Perguruan Tinggi. *Jurnal Pendidikan Biologi*, 1(2).
24. Olsson, P., C. Folke, V. Galaz, T. Hahn, and L. Schultz. (2007). Enhancing the fit through adaptive co-management: creating and maintaining bridging functions for matching scales in the Kristianstads Vattenrike Biosphere Reserve, Sweden. *Ecology and Society* 12(1): 28.
25. Olsson, P, Gunderson, L. H., Carpenter, S. R., Ryan, P., Lebel, L., Folke, C., & Holling, C. S. (2006). Shooting the rapids: navigating transitions to adaptive governance of social-ecological systems. *Ecology and society*, 11(1).
26. Powell, W. W., White, D. R., Koput, K. W., & Owen-Smith, J. (2005). Network dynamics and field evolution: The growth of interorganizational collaboration in the life sciences. *American journal of sociology*, 110(4), 1132-1205.
27. Provan, K. G., & Kenis, P. (2008). Modes of network governance: Structure, management, and effectiveness. *Journal of public administration research and theory*, 18(2), 229-252.
28. Purna, Z. A., & Ibrahim, M. A. (2017). Strategi mitigasi bencana alam nonstruktural di gunung bawakaraeng dalam perspektif adaptive governance. *Jurnal Analisis*. 5(1): 25-30.
29. Rhodes, R.A.W. (1997). *Understanding Governance: Policy Networks, Governance, Reflexivity and Accountability*. Buckingham: Open University Press.

30. Weber, E. P. (2003). *Bringing society back in grassroots ecosystem management, accountability, and sustainable communities*. Cambridge, Massachusetts, USA: TMIT Press.
31. Wijaya, A. F. (2007). *Problem Antisipasi Bencana: dalam Perspektif Good Governance dan Manajemen Pelayanan Publik*. In Makalah Seminar Nasional Potensi Migas dan Antisipasi Bencana di Jawa Timur. Malang: Universitas Brawijaya.