
Analysis Of The Preservation Of The Watershed As Well As The Settings In The Regulations

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Abstract

Watershed hereinafter referred to as watershed is an area of land that is in unity with the river and its tributaries, which serves to accommodate, save and drain the water derived from precipitation to the lake or to the sea naturally, a limit on the land is a separator topographic and boundary in the ocean up to the water that still affected the activity of the mainland. So necessary to the preservation of watershed management and the presence of laws and regulations that govern them. This is necessary because the area of flow of the river can provide considerable benefits to the keberlangsunga of human life such as spared from the flood, and can utilize the river water for daily needs as well as other benefits. The settings on the management of the flow of the river is regulated in government regulation No. 37 of 2012 as well as the LAW Number 32 Year 2009 on environmental protection and management. Thus also against the sanctions for violation of the watershed is necessary because in order to achieve the preservation of the watershed itself. Regarding sanctions on violations of the watershed is in the form of criminal sanctions of imprisonment and a fine as stipulated in LAW No. 32 Year 2009 whereas in the Permenhut No. 87/Menhut-II/2014 On Guidelines for Planting For the Holder of The Permit In Order watershed Rehabilitation only provide administrative sanctions against violators.

Keywords: *Analysis, The Preservation Of The Watershed, The Rule Of Law*

INTRODUCTION

The management of land resources in the context of development in Indonesia in the future become more important because of the variety of challenges facing the increasingly complex among other things: (1) population pressure on the land, (2) land conservation and land use, (3) forest degradation and land degradation, (4) damage to the environment as well as natural disasters continue to increase. Therefore, the concept of resource Management sustainable land by paying attention to these challenges need to be formulated on a national scale, regional, and local. Article 1 (2) of government Regulation Number 37 in 2012 said that the Management of the flow of the river is the human effort in the set up a reciprocal relationship between natural resources with humans in the regions of the flow of the river and all its activities, in order to materialize the sustainability and harmony of the ecosystem as well as increasing the benefits of natural resources for humans in a sustainable manner. In the article gives a goal in the management of river basins, namely the realization of sustainability and harmony of the ecosystem to human life.

Watershed is a unit of hydrology that can be used as a unit of physical - biological and as a unit of social economy and social politics to planning and activity management of natural resources. watershed is the unity ecosystem, therefore, in m & e activities in the management of the flow of the river is preferably carried out in an integrated and comprehensive, the flow area of the river is managed in an integrated (Integrated Watershed Management) is a process of formulation and implementation of an activity which involves the management of Natural and human Resources in a watershed by considering the aspects of social, political, and economic institutions in the regions of the flow of the river and around the watershed to achieve the goal of a particular social. the watershed has been the focus of environmental management as a result of the environmental degradation that occurs is indicated by the soil erosion and sedimentation, mainly due to deforestation in the form of forest conversion to other uses. (Pawitan. 2011).

The problems encountered in the management of the Flow of the River as this is the increase in the number of residents. An increasing number of people barakibat on the increase in the demand for land, so that the carrying capacity of the land and the carrying capacity of the environment decreases. Carrying capacity is the level of ability of land to support all the human activity in the area lately the number of natural disasters which befell the better landslides, flash floods and flooding. Such events do not in spite of the destruction of watersheds by human itself. The river is very beneficial for human life at this time other than for the purposes of day-to-day for persons also as a shelter rain water. So necessary to the preservation of the area of the river flow in order to maintain the continuity of the life for humans tu yourself and avoid the vessels of nature. watersheds can be maintained with the required role and the man sendiiri as well as the laws and regulations governing the area of the river flow and implementation of the rules.

RESEARCH METHODS

The criteria and sub-criteria selected in the application require the parameters to be calculated where the result is qualified in several classes, and each class is assigned a score that reflects the qualifications of the indicators, that is, from very low to very high. The method and procedure of application of the criteria/sub-criteria are described in full here.

1) The condition of the Land, the Criteria of the Condition of the land includes 3 (three) sub-criteria here:

a) the Percentage of degraded Land

calculation formula:

$$PLLK = \frac{LK \times 100\%}{A}$$

Description formula:

PLLK = The percentage of the land area of critical

LK = The land area of critical and very critical (ha)

A = The flow area of the river (ha)

Additional description:

- LK obtained from the results of the inventory of degraded land by BPDAS with the criteria in accordance SK Dirjen RRL No. 041/Kpts/V/1998. Class criticality of the land included in the calculation of this is a category of critical and very critical.

b) Closing Percentage Of Vegetation

$$PPV = \frac{LV \times 100\%}{A}$$

Description formula:

PPV = Closing Percentage Of Vegetation

LV = Widespread closure of land vegetation (ha)

A = The flow area of the river (ha)

Additional description:

LV obtained from the results of the interpretation of the satellite imagery, aerial photographs and data of the National Land Agency, BAPLAN Ministry Of Forestry, BAPPEDA

2) The quality, Quantity, and Continuity of Water (Water management)

The criteria of quality, quantity and continuity of water (the water) was selected to describe the condition of the hydrological watersheds, approached with five sub-criteria, namely

coefficient of regimes of flow, the flow coefficient of the annual load of sediment, flood and water use index.

How the calculation of the parameters for each sub-criteria are as follows:

a) Koefisien Rejim Aliran (KRA)

Calculation formula :

$$KRA = Q_{\max}/Q_a$$

$$Q_a = 0,25 \times Q_{rata}$$

Description formula:

Q_{\max} = daily discharge the highest annual average

Q_a = signature debit (debit card that can be used/mean)

Q_{rata} = daily discharge a monthly average of more than 10 years

b) Flow Coefficient Annual

Calculation formula:

$$C = \frac{k \times Q}{CH \times A}$$

Description formula:

C = flow coefficient annual

k = conversion factor = (365x86.400)/10

A = the flow area of the river (ha)

Q = discharge average annual (m³/det)

CH = precipitation is the average annual (mm/th)

c) The Charge Of The Sediment

Calculation formula:

$$MS = k \times C_s \times Q \text{ (ton/tahun)}$$

Description formula:

MS = The charge of the sediment

k = Conversion factor (365 x 86,4)

C_s = sediment concentration gr/liter (average annual)

Q= discharge average annual (m³ /det)

The charge of the sediment measured at the same place with the location of the discharge measurements and attempted to reflect the condition of the watershed in the upstream, middle and downstream.

d) Flood

Flood in this case is defined as the overflow of river water, lake or sea which bathes the area of a certain (usually dry), which significantly raises the loss of both material and non-material to humans and the environment.

How to acquisition of data:

The Data required in the form of data frequency of flooding obtained from incident reports bencan flood or direct observation.

e) The Use Of Water

Description formula:

$$IPA = \frac{\text{Total water needs}}{Q_a}$$

Description formula:

IPA = The use of water

Total water needs = need water for irrigation + DMI + flushing city

DMI = domestic, municiple & industry

Qa = signature debit

RESULTS AND DISCUSSION

The form of the preservation of the watershed

Indonesia has at least 5.590 the main river and 65.017 tributaries. Than 5.5 thousand main river length of the totals 94.573 km with the Flow Area of the River reach 1.512.466 km². In addition to has function hydrologically, the river also has a role in maintaining the biodiversity, the value of the economy, culture, transport, tourism and other. Today most of the watersheds in Indonesia suffered damage as a result of changes in land use, population growth and lack of public awareness of environmental conservation watershed. Symptoms of Damage to the environment Regional Flow of the River can be seen from the shrinkage of the area of forest and land degradation, especially protected areas in the vicinity of the Flow of the River.

The impact of Damage to the watershed. Damage to the watershed which has resulted in conditions of the quantity (discharge) of the river water to fluctuate between rainy season and dry season. Besides, it is also decreasing water reserves as well as the high rate of sedimentasi and erosion. The impact is felt then is the occurrence of floods in the rainy season and drought in the dry season. Damage to the watershed also resulted in a decreased water quality of the river experiencing the pollution caused by the erosion of critical land, household waste, industrial waste, agricultural waste (plantation) and mining waste. Every ecosystem in the watershed has a component of life and non-life that interact with each other. Understanding a watershed means learning about all the natural processes that occur within the boundaries of a watershed. A watershed can provide:

- Nutrient elements for plants
- A source of food for humans and animals
- Drinking water is healthy for humans and other creatures
- Place a variety of human activities and animals

Some of the natural processes in the watershed could provide a beneficial impact to the portion of the watershed, but at the same time can be detrimental to the other. Flood on one side provide additional land in the flood plain but for a while give a negative impact to human and other life. Watershed is an area of land that is in unity with the river and its tributaries, which serves to accommodate, save and drain the water derived from precipitation to the lake or to the sea naturally, a limit on the land is a separator topographic and boundary in the ocean up to the water that still affected the activity of the mainland. In the implementation to the preservation of the watershed required the participation of the community. As for the role as well as society as the individual in question can be in the form of:

- a. Maintain, preserve and enjoy the quality of the environment that produced the ecosystem of the watershed;
- b. Get and give information, advice and considerations in the management of watersheds; and
- c. Get the training and education related to the management of the flow of the river.

Community empowerment aims to improve the capacity and capabilities, awareness and community participation in the management of the flow of the river. By involving the community then the preservation of the area of the flow of the river can be run properly and in accordance with the objectives of the function of regions of the flow of the river itself. Likewise, that the society that have a direct relationship with the watershed, such as the utilization of water of the river.

Thus, the form of the preservation of the watershed is required actions from the government both central and local government as well as the role of the community itself. As for the shape of its preservation as follows:

- a. Not located in south land in the watershed;
- b. Do greening in the watershed;
- c. Don't do pollution on water quality in the river;
- d. Against the government to make regulations that expressly and clearly against the region and the management of watersheds;
- e. Do counseling and pembibingan as well as training to the community around the area of the river flow in the efforts of the management and preservation of the watershed area;
- f. Provide strict sanctions against a breach in the watershed area;
- g. Enable and give freedom to the local wisdom of the community around the area of the flow of the river.

Setting The Watershed According To The Laws And Regulations

Regulations governing the Area of the Flow of the River quite a lot but it sometimes happens often an overlap of duties and functions and authority in keeping kelestaria against the flow of the river was senidir. But in particular the regulations on the management of the flow of the river is regulated in the Government Regulation of the Republic of Indonesia No. 37 of 2012 on the Management of the Flow of the River. In these regulations mention that this regulation governing the management of the flow of the river from downstream to upstream as a whole. The management of the flow of the river as a whole as those organized through the stages of: a. Planning; b. Implementation; c. Monitoring and evaluation; and d. Guidance and supervision.

In the management of the flow of the river is not only done by the government both at the central and local government to the district level or the city but can also be requested participation and community empowerment. As for the role and is regulated in Article 57 which states that: (1) the Public can participate in the management of the flow of the river. (2) the Role of the community as referred to in paragraph (1) can be done both individuals and through the forum for the coordination of the management of the flow of the river. (3) coordination Forum in the management of the flow of the river as referred to in paragraph (2) help in supporting the integration of the implementation of the regional management of the flow of the river. While the function of the forum coordination in the management of the flow of the river is regulated in Article 58 of the Forum coordination of the management of the flow of the river has the function to: a. accommodate and channel the aspirations of the people related to the management of watersheds; b. contribute thoughts in the management of the flow of the river; and c. grow and develop the role of community supervision in the management of the flow of the river. Regarding the planning of the management of the flow of the river diatu in Article 53 of regulation No. 37 of 2012, which states that: (1) Based on the Plans of the Management of the flow of the river, carried out the determination of the Plan the Management of the flow of the river to the restored capacity, and/or the area of the flow of the river maintained its carrying capacity. (2) Plan the Management of the flow of the river is determined by: a. Minister for regional river flow cross-Country and/or regions of the flow of rivers cross the Province; b. the governor of the appropriate authority for the river basins in the province and/or cross kabupaten/kota; c. the regent/mayor in accordance its authority to the regions of the flow of the river in the district/city. (3) the Plan of the Management of the flow

of the river becomes one of the basis in the preparation of the development plan of the sector and the region in each province and district/city.

CONCLUSION

The preservation of the watershed is very important in order to preserve the environment. Because the watershed is important in maintaining the continuity of human life such as spared from the flood. So necessary to the preservation of the good done by the central government to the local government as well as the participation of the community. Some form of preservation of the watershed as follows:

- a. Not located in south land in the watershed;
- b. Do greening in the watershed;
- c. Don't do pollution on water quality in the river;
- d. Against the government to make regulations that expressly and clearly against the region and the management of watersheds;
- e. Do counseling and pembibingan as well as training to the community around the area of the river flow in the efforts of the management and preservation of the watershed area;
- f. Provide strict sanctions against a breach in the watershed area;
- g. Enable and give freedom to the local wisdom of the community around the area of the flow of the river.

Against the setting of the watershed in the regulations have been good enough because of the presence of regulations that specifically regulates the flow area of the river was realistic as well as paraturan implementation to support the implementation of the preservation of the watershed. Like Law Number 32 Year 2009 On Environmental Protection and Management. Government regulation No. 37 of 2012 on the Management of the Flow of Sungai as well as the regulation of the minister related to the management and preservation of the environment. While the sanctions are not arranged in a clear breach of the management and preservation of the area of the river flow. But if seen from the Law Number 32 Year 2009 set of sanctions against the pollution of the raw water quality, where the river is the place perkumpulnya water and flows into the upstream. and the river is one of the watershed, then the violation of the watershed can be punished as provided in such legislation. In the regulation of the minister of forestry number. 87/Menhut-II/2014 On Guidelines for Planting For the Holder of The Permit In Order watershed Rehabilitation only provide administrative sanctions against violators.

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