PROCEEDING

International Conference on Education, Science, and Technology

Publishing Institute
Makassar State University

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ISBN: 978-602-9075-05-2

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FOREWORD

Main theme of the 54th anniversary of Makassar State University is Education as an intelligent movement towards superior generations who have good character. The event series started from 29 June until 22 August 2015.

This conference is an annual academic event that holds as a part of events series to celebrate the anniversary of Makassar State University. This year, it is conducted and arranged by engineering of faculty as the main committee for the 54th Dies Natalis. This conference comes with theme "Optimizing the role of character education through science and technology towards excellent and intelligent generation". The main theme is expected to give birth on new thinking and recommendation on aspects such as the following : Science and Technology, Art and Humanities, Education, Vocational Education and training and other interests that related to the main theme.

This proceeding consists of all accepted and supplementary paper. They are also presented in the conference. All papers are contributed by researchers who are not only academic member of Makassar State University but also those who come from many area disciplines such as teachers, practitioners, and students. It is hoped that this proceeding will be used well as academic references in the field of education and vocational education especially in term of building and integrating character education as one of very important factors to produce generation which are not only smart but also have good character.

Makassar, August 15th 2015

Editor

THE SCHEDULE OF INTERNATIONAL CONFERENCE

"Optimizing the Role of Character Education through Science and Technology
Towards Excellent and Intelligent Generation"

Makassar State University, August 20th 2015

TIME	ACTIVITY	PRESENTER	PIC
07.30 – 09.00	Registration		Committee
09.00 – 09.05	Opening ceremony	*Master of Ceremony* (MC)	Masni & Hasrul
09.05 – 09.10	Lagu Indonesia Raya	Dirigen	
09.10 – 09.20	Pembacaan Doa	Dr. Faisal Amir, M.Pd.	
09.20 – 09.30	Report and welcome address	Prof. Dr. Husain Syam, M.TP. (Chairman of Dies Natalis Committee)	MC
09.30 – 09.40	Welcome address	Rector UNM	MC
09.40 – 10.00	Opening Ceremony and Speech as Keynote Speaker	Prof. Mohamad Nasir, Ph.D. Ak. (Ministry of Research, Technology and Higher Education)	MC
10.00 – 10.10	Cultural Action	Traditional Dance (maks 10 menit)	MC
10.10 – 10.20	Souvenir Gift	Given by Rector UNM & Chairman	Committee
10.20 – 10.30	Coffee Break		Committee
10.30 – 12.00	Speech of Invited Speaker (Panel Session)	1. Prof. Dr. Muklas Samani (UNESA) 2. Ir. Simon Tandibua, M.Eng. (BPPT)	**Moderator:** Hasanah Nur **Notulen:** Yasdin
12.00 – 12.20	Discussion	Participant	
12.20 – 12.30	Souvenir Gift	Given by Coordinator of Seminar	Committee
12.30 – 13.30	Lunch Break		Committee
13.30 – 14.40	Speech of Invited Speaker (Panel Session)	1. Prof. Baharuddin Aris (Malaysia) (*Character Building in Academia via NALI & NA-RIPENS*) 2. Prof. Graeme Johansen (Australia) (the links between Information and Communications Technologies (ICTs), entrepreneurship, and excellence in education) 3. Larry Lai (Singapore) (*Character Education in the Cyber Age*) 4. Mahyuddin Bin Arsat, Ph.D. (Malaysia) Empowering Character Education through Sustainability Thinking In Engineering	**Moderator:** Yasser A. Djawad **Notulen:** Dyah D. Andyani
14.40 – 15.20	Discussion	Participant	
15.20 – 15.30	Souvenir Gift	Given by Coordinator of Seminar	Acara
15.30 – 15.45	Coffee Break		Committee
15.45 – 16.45	Parallel session	National & International presenter	Moderator: Fiskia Rera; Samnur; Ahsan; Amiruddin; Prof. Yunus; Prof. Lahming
16.45 – 17.00	Closing Ceremony	Gift for the best presenter; Most active participant, the best moderator	Committee (Prof. Sapto)

THE SCHEDULE OF INTERNATIONAL CONFERENCE

- PARALLEL SESSION -

Makassar State University, August 20th 2015

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15.45 – 15.55	Muhammad Danial[1] & Nurlaela[2]	Development of basic chemistry learning tools forbiology-based group investigation for improving metacognition skills and concepts mastery
	Dahyar Daraba	Character education as the basis formation of praja (students of institute of domestic governance) to become a pioneer in mental revolution
15.55 – 16.05	Agustan S.	The process of student's thinking having learning style of auditory-sequential in understanding quadrilateral
	Andi Asmawati Aziz[1], Nurhayati B[2], Andi Irma Mutmainnahtul Adawiyah[3]	The influence of using instructional media lectora inspire to students learning outcomes of class x in material of invertebrate at SMA Negeri 9 Bulukumba
16.05 – 16.15	Firman, Nurhayati B., Yusminah Hala, A. AsmawatiAzis, & Oslan Jumadi.	Correlation between peer assesment, readiness to learn with maternity care course's learning outcome of the students of Bina Bangsa Majene institute of health science
	Muhammad Akil Musi[1] & Azizah Amal[2]	Implementation of cultural value in character education for early childhood (case study at bugis family in Makassar city)
16.15 – 16.25	Mustari S. Lamada	Needs analysis project based learning in programming webcourses at informatics and computer engineering education UNM
	Muhammad Yahya	Ananalysis of vocational competency on eastern Indonesia
16.25 – 16.35	Sugiarti and Reni Appang Allo	The effect of using media animation through guided inquiry learning model toward motivation and student's achievement at class vii smpn 30 makassar (study on characteristic substances)
	Usman[1)], Nasrullah[2)]	The difference of mathematical disposition based on learning models cps and dt in mathematics learning for secondary graders
16.35 – 16.45	Erma Suryani Sahabuddin[1)], Filha Mori Duhuria[2)]	Cooperative learning model "student teams achievement divisions" effect toward learning outcomes of science program and interpersonal interaction
	Nuri Emmiyati	Students' Motivation Profiles Of Junior Secondary School In Indonesia In Learning English
16.45 – 16.55	Sapto Haryoko[1)], Hendra Jaya[2)]	Attitude assessment students of vocational school toward using android based simulation laboratory
	Nurhikmah Hasyim	Character building as efforts to prevent crime and demoralization children in elementary school
16.55 – 17.05	Rusyadi[1)], Ahmad [2)]	Analysis of supervisor performance of vocational high school (case study in district Pinrang in South Sulawesi)
	Muhammad Rais[1], Amiruddin[2]	Disaster mitigation education model based on social learning theory

TIME	PRESENTER	PAPER
Parallel Session II: Science And Technology		
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	Soetyono Iskandar	Alternative electric power plant that environmental friendliness at Indonesia
15.55 – 16.05	Mithen[1], Sunardi[2]	Impact of environmental conditions settlement watershed of Mamasa
	Nurlita Pertiwi	Ecobehaviour in the management of riverbanks at Soppeng regency
16.05 – 16.15	Nasrullah	Teachers' creativity in posing problems of mathematics using traditional games as learning context
	Ita Hasmila[1], Amaliah Z.J.[2], Netti Herawati[3], Muhammad Danial[4]	Isolation and identification of secondary metabolite compound etil acetate in the bark extract of pedada mangrove *(sonneratia caseolaris)*
16.15 – 16.25	Rosmini Maru	Rainfall seasonality index for south sulawesi province, indonesia, 1982-2012
	Wahidah Sanusi[1], Syafruddin Side[2] & Muhammad Kasim Aidid[3]	Intensity-duration-frequency (idf) curves for rainfall data in Makassar city
16.25 – 16.35	Moh. Ahsan S. Mandra	Analysis of emission control strategy of vehicles in makassar city using interpretative structural modeling
	Muhammad Ichsan Ali	Contingency plan for flash flood in Enrekang regency
16.35 – 16.45	Mushawwir Taiyeb[1] , Irma Suryani Idris[2]	Analysis of dietary habit and nutrition status biology student mathematic and sciences faculty makassar state university
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TIME	PRESENTER	PAPER
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16.05 – 16.15	Heru Winarno	The role of social capital, entrepreneurship education and interest among students at faculty of engineering Makassar State University
16.15 – 16.25	Mashur Razak[1] , Bahrul Ulum Ilham[2]	The effect of personal character, family, and governmental policy toward entrepreneurship competence of young entrepreneur (case study of gkn 2014 program South Sulawesi).
16.25 – 16.35	Andi Aminullah Alam	The impact of school counseling on student educational outcomes in high schools
	Ismail[1] , Nurhikmah Tenri Pada[2]	Analysis of student character development stages through the implementation of typical curriculum of sekolah alam (a case study in sekolah alam bogor junior high school level)
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IMPACT OF ENVIRONMENTAL CONDITIONS SETTLEMENT WATERSHED OF MAMASA

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ABSTRACT

The research aimed to know what the imfact condition settlements watershed of Mamasa, what the essential meaning and role watershed of Mamasa in the Sulawesi island, and the global imfact from the people activity in this area. The type of research was a survey research, with compiling the data structured interview technique. Variable of this study was the imfact condition settlement watershed of Mamasa. The data analysis technique used was a descriptive analysis namely: describing or interpreting the results obtained from these interviews. The results indicated that contition settlement watershed of Mamasa, it wide is 1.034,02 km^2 consists of seven districts, 58 villages, inhabited by a population of 70.284 people, 17.630 houses. Protectif forest 51.995 ha, and critical land 42.270 ha, part of tropical foerst in Indonesia. It plays an important role as a source of hydroelectric power plants Bakaru water, which is the largest source of electricity to the island of Sulawesi, in addition to acting as a tributary Saddang, which is the source of water for irrigation Saddang, which is the source of water to the rice fields Sidrap and Pinrang, which are the granary. The main rice in eastern Indonesia, and also serves as a place to shelter for the people in this place. People activity in this place mayority as the parmer (63,23 % from the population), they are fine work by traditional way, which is has negative imfact to the environment and support heating global.

Keywors : ***Imfact Condition settlements watershed of Mamasa.***

A. Introduction

Law of the Republic of Indonesia No. 32 of 2009 (Article 1: 1) of the Environmental Protection and Management, explained that the environment is the unity with all things space, power, state, and living beings including humans. The mandate of article one of the law describes a space called the environment, where the room contains objects, both animate and inanimate objects. Rachmad (2009) says that the components of the environment that consists of two types, namely component biotic and abiotic components. Biotic components are living beings which include animals, plants and humans. Abiotic components are non-living objects (die), among others, water, soil, rocks, air and sunlight. All the components are in the environment is an integral and inseparable and form a living system called ecosystems.

In Article 1: 1 Law of the Republic of Indonesia No. 32 of 2009, also contained therein meaning that greatly influence the behavior of humans and nature, as well as influential for other living beings, so that human behavior needs special attention in order to negative behavior towards nature conservation is reduced, and it is precisely the behavior of a friendly environment that should so dominant nature or the environment can be sustainably for the benefit of human beings for itself, as well

as other living beings, both in the present and in the future.

Development pattern of human relationships with the natural environment is determined by the wisdom and sense of responsibility of humans as the dominant creatures in exploiting the natural environment. Science and technology neutral, be beneficial or damaging to the environment is dependent upon humans apply.

Wisdom and sense of responsibility in managing the environment both as a guarantee of the survival and fulfillment of life, is a manifestation of awareness of environmental ethics in everyone. Environmental ethics is the ethics of human beings in looking at himself in the universe. Humans are the biotic components of the environment that has the power of thought and reasoning are high. In addition, humans have culture, social institutions and knowledge as well as the growing technology. The role of humans in an environment that is positive and there is no negative. The role of negative human is the role that harm the environment. This loss directly or indirectly arising from human activities in meeting their needs, the positive role of human nature is the role of the resulting benefit the environment because it can maintain and preserve the environmental carrying capacity.

One part of the environment is the Watershed, which also needs to be conserved and managed properly. According to the Law of the Republic of Indonesia Number 7 of 2004 on Water Resources (Article 1: 11), explains that:

Watershed is an area of land which is a unity with the river and its tributaries, which serves to accommodate, store, and drain water from rainfall to the lake or into the sea naturally, that the limit on land is topographical and boundary separator at sea until the water area is still affected by land activities.

On the basis of Law No. 7 of 2004 on the above, the Law of Watershed Management is regulated by the Government of the Republic of Indonesia Number 37 Year 2012 (Article 1: 2) says that:

Watershed management is the human attempt to regulate the interrelationships between natural resources with humans in the watershed and all its activities, to realize sustainability and harmony of ecosystems and increased usefulness for human resources in a sustainable manner.

Watershed management upstream and downstream, should be seen as a unity of natural resources, so that the river basin management can work well, wise, and not based on the relationship between human needs and the availability of resources. Tejowulan, RS and Sawardji (2010) said:

"The treatment of the upstream watershed is an important part of the overall management of the watershed, because it will determine the advantages that can be obtained, or the opportunities open in the downstream river basin management". Likewise Waryono (2008) says that: "The recovery of the river banks, should be community-based in the sense of focus to spur public awareness to the occupation of the population towards the banks of the river will be reduced".

The objective of watershed management is basically the use of natural resources is sustainable so as not to harm the environment. This objective is very important and should be supported by all parties in order to enhance the principle of benefit to humans.

In the era of regional autonomy, watershed management issues should not be put in the perspective of administrative boundaries, but watershed management should be viewed as a whole bio-region that may be comprised of several autonomous regions that are ecologically and economically interrelated. (Sinukaban 2008). Furthermore, he argued that: "an activity in the upper watershed will affect areas downstream. Watershed thus be varied interactions integrator ecosystem components, so the limit is often used as a benchmark watershed bioregion limits. "Limits bioregion in regional development is very important in sustainable development that ensures ecological functions and economic balance.

Watershed is a very important meaning and role in maintaining the ecosystem, especially as the water resources. If this area is damaged and not well maintained, can lead to catastrophic droughts in the dry season, and vice versa can cause catastrophic flooding in the rainy season. As a result of forest destruction in this region, so that the rain water that falls will be streamed quickly into rivers and even can lead to erosion and landslides. Conversely, if the forest area in the region is maintained, will be able to hold water and seep naturally into the soil so that water reserves will continue, does not cause flooding, erosion and landslides that nature conservation can be guaranteed. In connection with the background set forth above, the basin which will be discussed in this paper, is a settlement in the watershed area Mamasa are supposed to influence the Bakaru hydropower.

B. Research Methods

To get the data in this study, carried out by means of direct observation in the field, interviews with respondents, and review of the literature related to the problems of preservation of settlements in the

ISBN : 978-602-9075-05-2

watershed Mamasa, then analyzed by descriptive.

C. Research Result

1. Environmental Conditions of Settlement in the watershed Mamasa

a. Geographic

Watersheds Mamasa a mountainous valley region with an area of 1034.02 km ^{2} consists of seven districts, 58 villages and six urban villages, inhabited by a population of 70.284 people, of which approximately 63.23% were farmers who manage their traditional lands. Geographical location between 119 ° 20 '- 119 ° 25' east longitude and 2 ° 50 '- 3 ° 15' south latitude, with a height of between 300 m - 3,000 m above sea level. (CBS, 2012).

b. Forest and Land Critical

Based on data Mamasa in number (BPS, 2012: 164), protected forests in the watershed Mamasa 51 995 ha and 10 044 ha of production forests. Data critical lands in the Forest Service Mamasa (2013) covering an area of 61 594,51 ha.

To rehabilitate degraded land, the Forest Service Mamasa make critical land rehabilitation program, namely reforestation program for forest areas (protected forest), reforestation program for community forests and nurseries folk (KBR), which is funded from the State Budget and the Budget and Expenditure, with a very limited amount of funds, so that within a period of 10 years, the Forest Service Mamasa only able to rehabilitate degraded land amounting to 5 072 ha. This is due to the limited funds available, while others, both western Sulawesi Provincial Government, and the Government of South Sulawesi province as a direct user of watershed Mamasa in the downstream area, there is no contribution at all to help rehabilitate degraded land in this area.

c. Settlements in the watershed Mamasa

Watersheds Mamasa cleaved by the river which is the main river that flows from north to south, the long l04,163 km, average width of 18.50 m, the average discharge of 7.98 m ^{3} / sec (Source: NRM Sulbar 2013), with as many as 85 are tributary to the river Mamasa, consisting of 19 major rivers and 66 small rivers (Observations, June 2013).

Based on data Mamasa in number (BPS, 2012: 136), number of households that inhabit the watershed Mamasa, = 17 630 houses with people's behavior in terms of throwing feces at watershed Mamasa, there are 4645 or 26.3% of households dispose of feces into the river , 156 or 09% dispose of faeces in the pool or in the fields, 1,156 or 6.55% fecal waste in the fields or gardens, and there are 314 or 1.78% of fecal waste in certain places, so it can be concluded that the 6271 or 35.57%

of the population do environmental pollution through human waste.

Along the river there Mamasa large and small villages, even Mamasa city is the capital of Mamasa also cleaved by the river Mamasa. Likewise some district capitals such as: District Tanduk Kalua, District Sumarorong, and the District Messawa also cleaved by the river Mamasa so that almost all the banks of the river from upstream to downstream before entering into Pinrang, populated by residents and also the shaft Polewali - largely Mamasa along riverbanks Mamasa. Based on observations in June 2013, along the banks of the river with a distance of 20 meters on either side of the river bank, there are 1,273 houses (7.22%,) houses either permanent, semi-permanent, and emergency home. From the house number 827 which has a WC, though not all of them have a septic tank but many of the house lavatory pipes that drain directly into the river. There are 164 houses were put on MCK help PNPM Mandiri, and 282 houses which did not have toilets and waste water directly on the river. Then the whole house drain waste water from the kitchen and bathroom directly into the river Mamasa. In addition, on the banks of the river Mamasa there are three traditional markets also waste directly into the river. This new Mamasa river as the main river, not to mention its tributaries are quite a lot, and also many populated so that contamination of household waste to the river is quite significant. To see the condition of the river banks can be seen in the pictures below.

Figure 1. Settlement Conditions at the River Plate in the upstream region

Figure 1 shows the condition of the settlement on the banks of the river in the upstream watershed Mamasa, ie neighborhoods directly in contact with the mouth of the river. In addition to the danger of floods that could threaten the settlement, also visible pipes discharge pipe both domestic wastewater and the

ISBN : 978-602-9075-05-2

sewage pipes, even some of them are not through the septic tank but directly from the toilet.

The condition of the central region of the watershed Mamasa, neighborhoods also showed the same thing with the upstream region. Houses in direct contact with the mouth of the river, so that the household waste directly into the river flowed Mamasa, as in the image below.

Figure 2. Settlement Conditions at the River Plate in the central regio

In addition to the liquid waste from kitchens, bathrooms, even from the toilet many residents dispose of solid waste or garbage into the river, as in Figure 3.

Figure 3. Garbage dumped in the River Plate in the central region

Another issue that also pollute the river, is largely people living along the river, also makes cattle sheds along the river, and the greater part of their livestock manure flowing directly into the river.

2. The role of Watershed Mamasa Against Hydroelectric Bakaru

One of the watershed very important meaning and role in the area of South Sulawesi and West Sulawesi, was a watershed Mamasa. This watershed water plays an important role as a source of hydroelectric power plants Bakaru, which is the largest source of electric power on the island of Sulawesi, in addition to acting as tributaries Saddang which is the source of water for irrigation Saddang which is the source of water for rice fields in Pinrang and Sidrap, which is The main rice granary in eastern Indonesia, and also

act as a settlement for the people in this place.

In the development of civilization in tune with changes in this area, accompanied by a growing population who need to share the necessities of life so that natural resources are exploited to satisfy their needs. As a result, the forests that had a natural reserve slowly but surely changed into agricultural land and plantations, and settlement, and therefore contributes to global warming.

3. Impact The Generated

Due to the lack of public knowledge about environmental conservation in the watershed Mamasa, negatively impacting both the environment preservation of their own neighborhoods, and the wider impact caused, as proposed Muchtar (2006) that watershed conditions Mamasa now can be classified as a critical area requiring treatment and good management. Even Toha (2010) says: "... the impact on siltation in Bakaru occurred since 2005. If it is not anticipated from now, five years into the future Bakaru will be a museum". Toha also argued that since the formation of Mamasa, physical development in this region generated a lot of sediment in the river resulting Mamasa directly on hydropower Bakaru.

Upeks (Wednesday, 13-12-2006) also reported that:

Watershed preservation Mamasa less attention adversely affect hydropower Bakaru. Provincial Government of South Sulawesi, West Sulawesi provincial government and PLN Sulselra, considered less pay serious attention to the preservation of watersheds (DAS) Mamasa. This is evident from the extent of damage vegetation along the banks of river basin Mamasa and widespread public estates. As a result, the flow of water into the hydropower Bakaru now shrunk to 30%.

The study Japan International Coorperation Agency (JICA) in collaboration with the South Sulawesi and LPM Bapedalda Hasanuddin University (2001), reported that:

... The average sediment load in Watershed with an area of 108,000 hectares Mamasa, estimated at 133 x 10,000 m3 or 126 m3 / km2 which is equivalent to the loss of soil layer of 0.13 mm / year. So the sediment reservoirs Bakaru expected to receive 480,000 tons / year.

From the opinions of the above, it can be concluded that as a result of community activities in the upstream region and the central part of the watershed Mamasa, wide impact on downstream areas, particularly hydroelectric Bakaru should receive sedimentation every time, and

require maintenance to clean the sediment that can lead to operational cost High for the biggest power plant in the area of South Sulawesi and West Sulawesi. Even the broad impact, not only detrimental to the downstream area but the central region and upstream also feel the impact of flooding that took casualties, such as flooding in the upstream region in 2011 ruined settlements, and took casualties one person, and the victim considerable property , And most recently, on Thursday (11.08.12) there has been a flood in the central region that struck three villages in the District Batanguru Sumarorong has claimed the lives of 15 people and property were quite a lot. (Metrotvnews.com).

D. Conclusions and Suggestions

Conclusion

Based on the results of data analysis in this study, so that some conclusions can be drawn as follows:

1. Based on the analysis of field data mentioned above, in general Mamasa including river water polluted river water, although research to measure the level of pollution has not been done.
2. Based on observations and data collection through the relevant agencies, Mamasa watershed area is 1034.02 km ^{2} consists of seven districts, 58 villages and six urban villages, inhabited by a population of 70 284 inhabitants. From the area of 61594.51 hectares are degraded land, and within a period of 10 years, the Government Mamasa only able to rehabilitate an area of 5,072 Ha.
3. Mamasa settlements in the watershed, there are about 17 630 houses, 4645 or approximately 26.3% of the population behaves dump sludge into the river, 156 or 09% dispose of faeces in the pool or in the fields, 1,156 or 6.55% fecal waste in the field or orchard , and there are 314 or 1.78% of fecal waste in certain places, so it can be concluded that the 6,271 or 35.57% of the population do environmental pollution through human waste. In addition, there are about 1,273 pieces houses along the river, which is located about 20 meters from the river side by side and not in accordance with the demarcation line of the river.
4. Attention relevant agencies for the preservation of watershed Mamasa, much less, as seen from the results of interviews and observations, that the Government's attention to the region of West Sulawesi is very minimal, hydroelectric power plants Bakaru water as a direct user of water resources originating from this region Nothing. Government agencies are trying to preserve this area, is the Forest Service Mamasa, and Agency Environment Mamasa with very minimal funds, so

they are not able to do much to preserve this region.

Suggestion

Based on some of the conclusions obtained in this study, so it can be suggested following things:

1. Therefore, the role of this region is very important, so it is advisable for the consortium consisting of elements of the Government of West Sulawesi, South Sulawesi Provincial Government, and the Company hydroelectric power plants Bakaru water, which serves as a partner of local government Mamasa to devise and implement a prevention program critical land and maintenance of watershed areas Mamasa, so hydroelectric power plants Bakaru water as a source of power generation and irrigation Saddang still function properly in the future.
2. The role of the community is expected to assist the Government in preserving this region, so it is advisable to improve the welfare programs and public awareness of the importance of watersheds Mamasa for the benefit of the general public in two peovinsi, namely South Sulawesi and West Sulawesi.
3. We are suggested to the Government to cooperate with the Ministry of Housing to devise and implement the relocation of settlements communities living along the river, which do not comply river border to a safer place, and close to the source of their lives, for their safety and also for sustainability Mamasa riverbanks were many damaged and contaminated as a result of settlements densely populated almost along the banks of the river.

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