

POTENCY OF RECREATIONAL AND ECOTOURISM ACTIVITIES AS A FORM OF ENVIRONMENTAL SERVICES IN PASIRWANGI SUB-DISTRICT, GARUT REGENCY

Pipin Noviati Sadikin¹, Ritabulan²

¹ Department of Natural Resources and Environmental Program Planning, Bumi Manira Foundation, Indonesia; System Dynamic Center, Indonesia

² Forestry Study Program, Sulawesi Barat University, Indonesia

Corresponding author:

Department of Natural Resources and Environmental Program Planning, Bumi Manira Foundation, Indonesia; System Dynamic Center, Indonesia

e-mail: novysadikin@gmail.com

ABSTRACT

The Pasirwangi sub-district in Garut Regency has environmental services in form of recreational and ecotourism potency and function. This study aimed to analysis one form of environmental services namely potential of recreational and ecotourism activity and function based on its criteria. System dynamics approach was carried out in this research to get the projection about the tourism and spatial dynamics to know the ecosystem services recreation and ecotourism mapping. The result showed that the villages which has very high category only owned by three villages namely Barusari, Karyamekar Village and Padaawas Village. Yet the highest area of this very high category among the three villages is Karyamekar Village covering an area of 2.55 Ha. While in the high category that contributes the most area is Padaawas Village with an area of up to 311.08 Ha.

KEYWORDS

Ecotourism, Sustainable Tourism, Planning, Environmental Service, system dynamics

Introduction

Environmental service is benefit which is obtained by human from an ecosystem. These benefits consist of provisioning service, such as food and water; regulating service, such as regulating towards floods, drought, land degradation, pests and diseases; supporting service such as soil formation and nutrition cycling; and also cultural service such as spiritual, religy, including recreation, ecotourism, and other non material services. The fundamental problem in managing natural resources, is how to generate the greatest benefits for humans by not sacrificing the sustainability of natural resources itself [2].

Tourism is one of the new style industries that is able to provide rapid economic growth in terms of employment opportunities, income, standard of living and in activating other production sectors within the tourist receiving country. Tourism is a complex sector, covering industries in the classical sense, such as the handicraft and souvenir industries. While it is one of the tourism activities that are environmentally sound with the priority of nature conservation aspects, socio-cultural empowerment aspects of local communities as well as aspects of learning and education [7][9].

UNESCO (2009) states that sustainable tourism which form in ecotourism also is a tourism that has characteristics, namely: (1) Can meet the needs of the present and the future, and (2) Does not damage the local nature and culture, in order to be passed on to the next generation. Sustainable tourism includes sectors supporting tourism activities in general, including marine tourism (beach and sun tourism), rural tourism (rural and agro tourism), natural tourism (natural tourism), cultural tourism (cultural tourism) or travel (business travel). Nature tourism is included in it is ecotourism and adventure tourism (Adventure) [1]. The implementation of sustainable tourism needs to consider the three dimensions of sustainability, namely economic, ecological and socio-cultural [5][6]. Ecotourism utilizes these wild and natural resources in the form of conservation efforts of various species, habitats, landscapes, landscapes and life in seawater and fresh water [2]. Fennel (1999) provides the definition that ecotourism is a sustainable form of nature-based tourism directed primarily at the experience and learning about nature, which ethically pays attention to management in order to have a low impact, not consumptive, and oriented to local communities and conditions (control, benefits and

scale), being in natural areas, and contributing to conservation and preservation efforts of the ecotourism area [4][10].

One of the important environmental services in Pasirwangi sub-district is cultural service for ecotourism and recreational space, and also cultural function of natural aesthetic. This study aimed to analysis one form of environmental services namely potential of recreational and ecotourism activity and function based on its criteria.

Method

Location

Pasirwangi is a sub-district in Garut Regency, West Java Province, Indonesia. This sub-district is about 15 km from the capital of Garut Regency to the west. The center of government is Pasirwangi village. Pasirwangi sub-district is famous for having tourist attractions such as Darajat Crater. Administrative boundaries of Pasirwangi sub-district are north side is bordered with Karya Mekar village, south side bordered with Mekar Jaya village, east side bordered with Talaga village, and west side bordered with Karya Mekar village.

Collecting Data and Analysis

The scope of the environmental services study area exists around the Pasirwangi sub-district, covering living space and land use area is around 46,70 km² or 4.670 Ha. The data were collected from secondary data, and primary data includes data from observations, interviews, FGD and measurement of land capability class. Due to broad coverage area, the verification of results and ground check were carried out by conducting FGD (focus group discussion) with resource persons and stakeholders or other parties who are concerned. The study had resulted regarding 20 types of environmental services, including potential ecotourism and sustainable tourism. Furthermore, all maps resulting from the analysis were confirmed or verified with studies and findings from opinions of resource persons and stakeholders. Implementation of FGD used the Group Model Building method to make an inventory of sub-district programs related to environmental services, especially in ecotourism issue. The results of the FGDs were then mapped and structured based on the high criteria and potency of the ecotourism. System dynamics approach was carried out in this research to get the projection of main condition tourism in Pasirwangi Sub District. The relationship between variables is reflected in the causal loop diagram. Causal Loop Diagram Recreational and Ecotourism activities as a form of Environmental Services shown in the Figure 1.

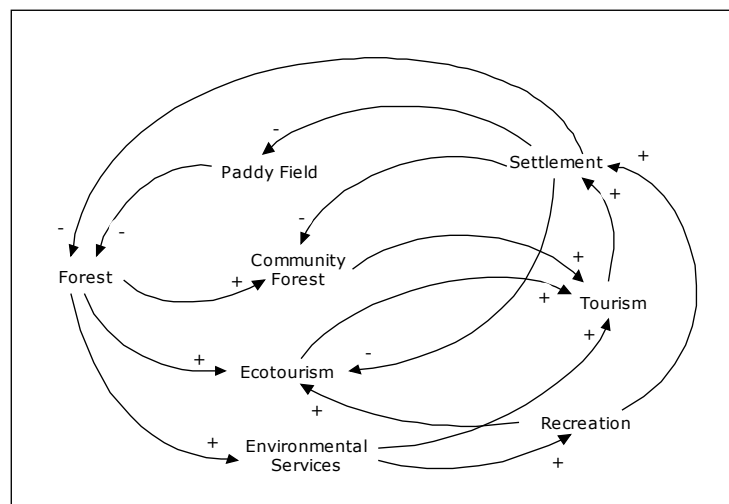


Fig 1 Causal Loop Diagram Recreational and Ecotourism activities as a form of Environmental Services

Result and discussion

Environmental services of recreation and ecotourism show the landscape feature, natural uniqueness or certain value which become tourism attractiveness. These environmental services provide panoramic view and natural activities such as bathing in the hot spring or sightseeing on natural landscape which spoil our eyes.

Table 1 Environmental Services on Recreation and Ecotourism

Scale	Total Area (Ha)
Very High	4.23
High	1,793.82
Medium	2,008.20
Low	1,357.76
Very Low	162.25

Source: Analysed data 2020

Pasirwangi sub-district has good recreational and ecotourism ecosystem services, in addition to the fact that there are beautiful hills which form the idyllic landscape. The results of the analysis also show the dominant value of the criteria of recreational and ecotourism ecosystem services at a moderate and high level (Table 1). But in very high ecosystem services tend to be low criteria only about 4.23 Ha, for high criteria covering an area of 1,793.82 Ha, for medium criteria covering an area of 2,008.20 Ha which is also the most dominating ecosystem services in Pasirwangi sub-district. As for very low and low classes respectively has an area of 162.25 Ha and 1,357.76 Ha (Figure 2).

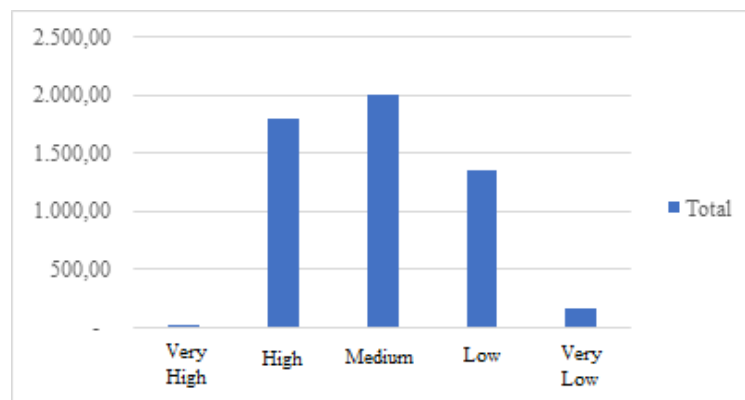


Fig 2 Environmental Services of Recreation and Ecotourism

To elaborate the villages area more detail see table 2.

Table 2 Environmental Services on Recreation and Ecotourism each Village

Desa	Very Low	Low	Medium	High	Very High
Barusari	10.71	114.65	248.19	343.88	0.86
Karyamekar	37.22	248.15	261.25	177.35	2.55
Padaasih	9.39	47.61	93.07	84.74	
Padaawas	19.73	311.08	340.94	510.24	0.82
Padamukti	2.77	56.34	82.01	42.55	
Padamulya	13.33	60.48	52.79	44.18	
Padasuka	5.42	31.88	31.33	19.72	
Pasirkiamis	8.04	86.27	135.24	20.28	

Pasirwangi	14.34	80.33	214.17	126.79
Sarimukti	23.39	181.05	295.48	348.84
Sirnajaya	3.78	69.83	85.80	32.28
Talaga	14.12	70.10	167.93	42.97

Based on the table about the potency in each village in Pasirwangi sub-district, the villages which has very high category only owned by three villages namely Barusari, Karyamekar Village and Padaawas Village. Yet the highest area of this very high category among the three villages is Karyamekar Village covering an area of 2.55 Ha. While in the high category that contributes the most area is Padaawas Village with an area of up to 311.08 Ha as showed on Figure 3.

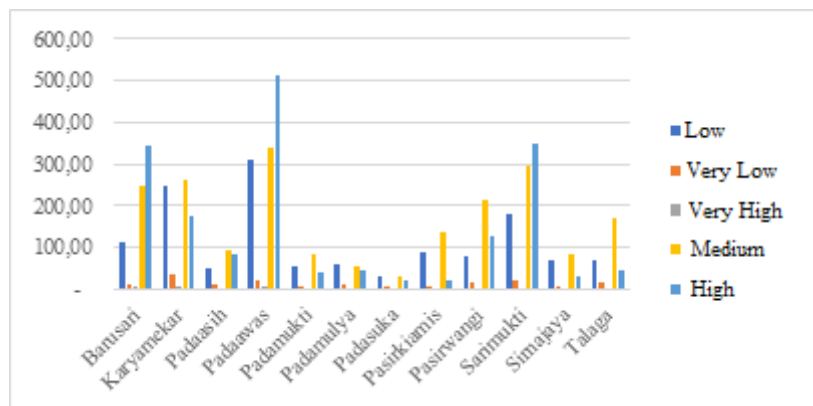


Fig 3 Environmental Services of Recreation and Ecotourism Each Village

This result is projected using the GIS tool to describe the map of land capability class for environmental services on recreational and ecotourism potency as showed on Figure 4.

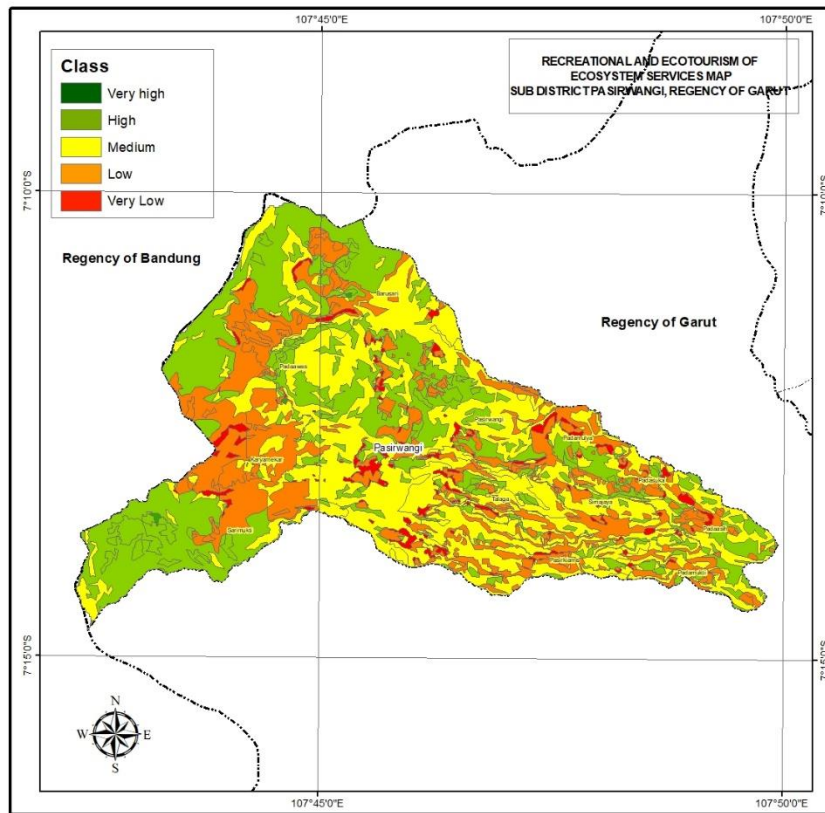


Fig 4 Map of Land Capability Class for Environmental Services on Recreational and Ecotourism Potency

The result of projections shows the number of tourists in the Pasirwangi sub-district. In 2020 the number of tourists in the Pasirwangi sub-district is as many as 523,241 people. This number has increased in 2021 as much as 570,196 and is expected to increase even more in 2030 as much as 791,610 . This increase in tourists will encourage tourism potential in Pasirwangi District. The graph of the increase in the number of tourists is presented in Figure 5.

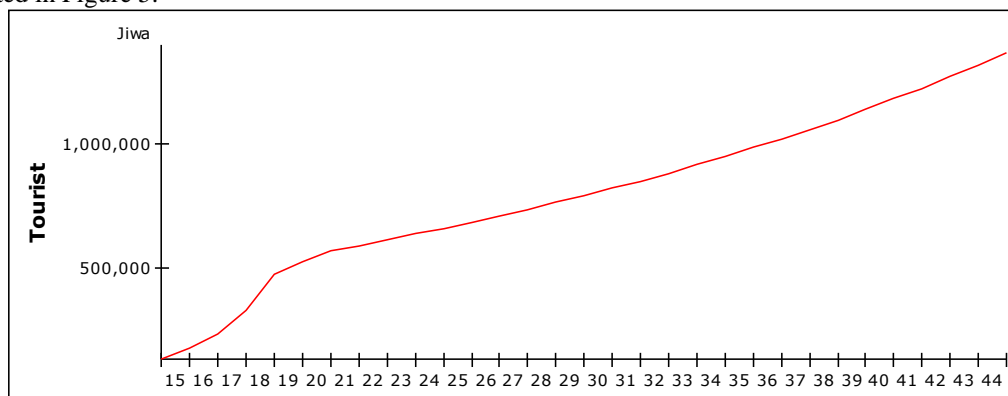


Fig 5 Projectio of Tourism Amount

The water used for tourism services is needed to support the existing tourism potential in Pasirwangi District. The condition of water availability for tourism in Pasirwangi sub-district tends to decrease. In 2020 the amount of water available is 297,978,510,261.5 liters. From 2025 to 2030, the projected water availability shows a

decline with a total of 297,931,562,796.4 liters and 297,874,719,053.4 liters. Figure 6 is a graph of available water conditions in Pasirwangi sub-district.

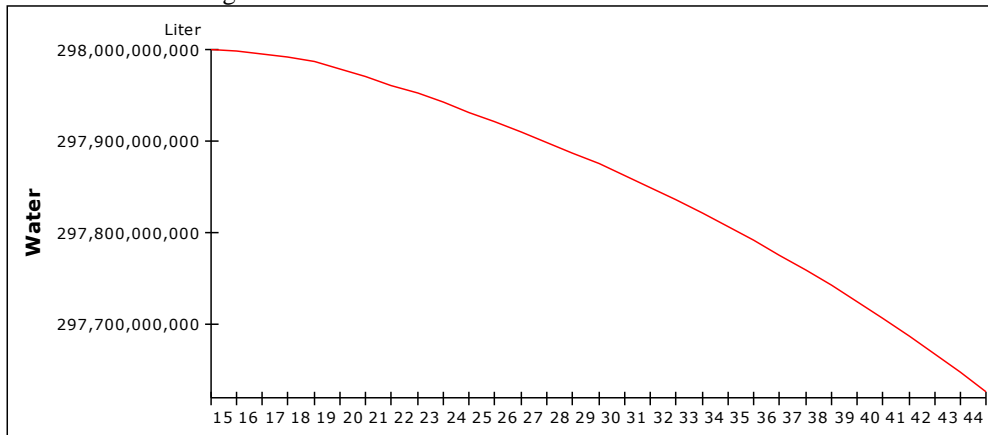


Fig 6 Projection of Water in Sub District of Pasirwangi

The results of the projection of the number of visitors or tourists indicate an increase in the number. This number continues to grow over time. This is proportional to the amount of water demand that continues to increase. In 2020 the amount of water needed for tourism was 8,371,861.50 liters. This number is increasing due to an increase in the number of tourists. In 2021 and 2030, the demand for water will increase with a value of 91,23,137.68 liters and 12,665,764.72 liters. The water demand projection graph is visualized in Figure 7

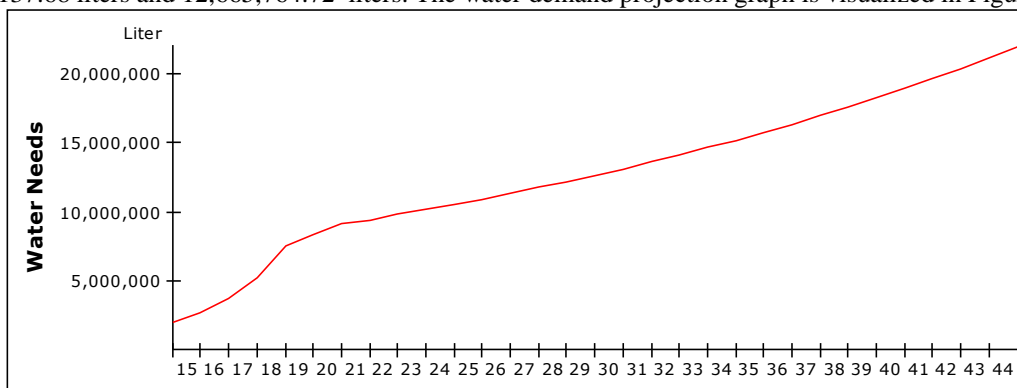


Fig 7 Projection of Water Need in Sub District of Pasirwangi

Conclusions

Based on the results of the study, it is concluded that environmental services in form of recreational and ecotourism are also important and able to be priority of the development planning for the future. The recreational and ecotourism potency, land and space are still very large, even in each village in Pasirwangi has its own recreational and ecotourism potency, land and space. It will be a chance to be utilized optimally and sustainably. The implication of this conclusion is that the policy actors need to carry out recreational and ecotourism planning and development wisely, in order to give benefits for the community, and also for the local government. Undeniable, the recreational and ecotourism program can be a mean to achieve the wealthy of local community and this is in accordance with the objectives of the SDGs.

References

- [1] [UNESCO] United Nations of Educational, Scientific and Cultural Organization. 2009. Panduan Dasar Pelaksanaan Ekowisata. Jakarta (ID): UNESCO

- [2] Goodwin H. 1997. Terrestrial Ecotourism. In Gunawan MP (Editor), Proceedings of Training and Workshop on Sustainable Tourism Planning (hal. 120-130). Bandung: Penerbit ITB.
- [3] Fauzi A. 2010. Natural Resource and Environmental Economics: Theory and Application. Jakarta (ID): PT Gramedia Pustaka Utama.
- [4] Fennel DA. 1999. Ecotourism: An Introduction. London (BR) and New York (US): Routledge
- [5] Sutarno, Y A. *Until Doomsday Depok Will Stay Congested*. in press
- [6] Laiko F. *Settlement Development Based on Land Capability Aspects in Development Area Unit I Gorontalo Regency*. Pasca Sarjana Universitas Diponegoro. 2010
- [7] Munibah, K. 2020. *Spatial Dynamic Roles in Regional Planning*. Webinar of dynamic and spatial systems.
- [8] Patopop P, et all. 2020. *Landsat Analysis Ready Data for Global Land Cover and Land Cover Change Mapping*. Jurnal of remote sensing. Vol 12 no 3.
- [9] Supriatna, et all. 2016. *Spatial Dynamics model for sustainability landscape in Cimandiri Estuary, West Java, Indonesia*. Social and Behavioral Science. Elsevier.
- [10] Murtianto H. 2010. *Evaluation of Land Capability for Land Use Direction with Aerial Photography*. Handout. Universitas Pendidikan Indonesia.