Media Development of underwater tourism based on Virtual Reality as a preparation for sustainable marine tourism

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ABSTRACT

The Indonesian government's vision to become the world's maritime axis encourages marine tourism to become a priority foreign exchange earner for the Indonesian economy. Marine Protected Area (KKP) data shows that Indonesia's sea area is 3,257 million km2 with a coastline length of 99,093 km, occupying the second largest position in the world after Canada. The area of ??the Coastal MPA and small islands is 20.87 million ha, has 590 species of coral, 2,057 species of reef fish, 12 species of seagrass, 34 species of mangrove, 1,512 species of crustaceans, 6 species of turtles, 850 species of sponge, 24 species of marine mammals and 463 points the ship sank[1]. This potential makes the Indonesian seas very suitable for educational tours, underwater/diving tours, conservation tours and Scientific Diving. With the wealth and beauty of Indonesia's seas, diving is one of the marine tourism potentials that needs to be developed.

Indonesian marine tourism has a very large global market segment. Data for 2014, of the 9 million foreign tourists who came to Indonesia, 70% of them chose sea tourism. This is different from domestic tourists (wisnus), who come for the purpose of sports and marine tourism, the percentage is still very small [2]. The development of underwater tourism through diving activities is a challenge for developing marine tourism potential. The low interest of domestic tourists in underwater tourism is due to various factors. Lack of knowledge about the underwater beauty of Indonesia, lack of promotion and socialization regarding diving activities to the extent that domestic tourists think that diving activities are difficult to learn. Not many people even know that diving can improve critical thinking and problem solving skills through real-world experiences [3]. Based on these conditions, this research was conducted to help provide an introduction, knowledge, understanding and experience about diving through the development of Virtual Reality (VR) based diving simulator media.

The object of this research is diving training learning where the case studies are in Tomini Bay or Gorontalo Bay. This bay is the largest bay in Indonesia with a water area of ??± 137,700 km2, and has a coastline of ± 1,350 km[4]. This bay has an important role for the world because it is located right in the heart of the world's coral triangle (heart of the coral triangle). This bay is actually a large area of ??water consisting of two bays, namely Tomini Bay in the western part of the waters and Gorontalo Bay in the east [5].

The aims of this study were: (1) Identify marine tourism sites in Tomini Bay, especially in Gorontalo (2) Create a VR-based diving simulation that is beneficial to the general public by avoiding high risks. (3) Producing a VR-based diving learning guidebook. The research method uses the R&D method with a development model. ADDIE (Analysis Design Development Implementation and Evaluation) This development research uses the ADDIE development model which consists of five stages of development, namely: (1) Analysis, (2) Design, (3) Development, (4) Implementation, and (5) Evaluation . In the ADDIE development model, a framework is given to respond to the complexity of the learning environment by responding to various situations and contexts, this makes the ADDIE process the most effective way of product development to date[6]

The outputs of this research are: articles published in reputable international journals and copyrighted by VR-based Undersea Tourism Development Media registered with PDKI. TKT that has been achieved in this study is TKT level 4 where components/subsystems can be validated in a laboratory environment.

Kata Kunci: *Diving, Virtual Reality, Marine tourism*