

**MODEL ASSES MEN POTENSI ENERGI TERBARUKAN BERBASIS
SUMBERDAYA AIR UNTUK PENGUKURAN BERPIKIR KRITIS
MAHASISWA RUMPUN GEOGRAFI
(Studi Kasus di DAS Cipunagara, Provinsi Jawa Barat)**

(DISERTASI)

Diajukan untuk Memenuhi Salah Satu Syarat Memperoleh Gelar Dr. pada
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Universitas Pendidikan Indonesia



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FAKULTAS PENDIDIKAN ILMU PENGETAHUAN SOSIAL
UNIVERSITAS PENDIDIKAN INDONESIA
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Yakub Siahaan, 2023

*MODEL ASSES MEN POTENSI ENERGI TERBARUKAN BERBASIS SUMBERDAYA AIR UNTUK PENGUKURAN
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RUMPUN GEOGRAFI (Studi Kasus di DAS Cipunagara, Provinsi Jawa Barat)

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ABSTRAK

Bentang alam DAS Cipunegara memiliki karakteristik yang sangat kompleks dari aspek hidrologi, morfologi, topografi, curah hujan, tingkat erosi, geologi dan tata guna lahan. Kompleksitas tersebut dapat dimanfaatkan untuk mengembangkan pembangkit listrik sebagai kebutuhan energi terbarukan nasional dan dapat ditransformasikan sebagai sarana pendukung model instrumen pengukuran di Perguruan Tinggi guna menciptakan *meaningful learning*. Tujuan pada penelitian ini meliputi (1) Menganalisis karakteristik bentang alam DAS Cipunegara dan asesmen potensi energi terbarukan sebagai sumber energi listrik; (2) Mengembangkan model asesmen potensi bentang alam untuk energi terbarukan berbasis sumberdaya air sebagai literasi geografi dan menganalisis tingkat akurasi asesmen potensi bentang alam untuk energi terbarukan berbasis sumberdaya air di DAS Cipunagara; (3) Menganalisis hasil pengukuran berpikir kritis dan mengetahui rumusan model asesmen potensi bentang alam untuk energi terbarukan berbasis sumberdaya air dengan menggunakan pendekatan geospasial dan pendekatan empirik pada mahasiswa rumpun Geografi. Metode yang digunakan berupa deskriptif, evaluatif dan eksperimen dengan pendekatan *Research dan Devolepment (R&D)*. Adapun, pengembangan model hipotetik dengan pendekatan ADDIE. Hasil penelitian menunjukkan (1) Karakteristik bentang alam DAS Cipunegara khususnya bagian hulu sungai teridentifikasi jika lokasi pengamatan 2 dengan skor pembobotan terbesar sebanyak (70%) sangat layak untuk dikembangkan energi terbarukan berdasarkan beberapa aspek kajian; (2) Pengembangan model asesmen potensi EBT untuk kemampuan berpikir kritis mahasiswa teruji dan layak digunakan dengan menggunakan tahapan pengembangan model ADDIE; (3) Hasil pengukuran berpikir kritis kelas A dengan perlakuan geospasial-empirik yang memiliki kecenderungan lebih tinggi dibandingkan kelas B dengan perlakuan empirik. Berdasarkan beberapa hasil penelitian merekomendasikan kepada beberapa pihak seperti BWWS Citarum untuk dijadikan pertimbangan lanjutan dalam mengembangkan potensi EBT di DAS Cipunegara serta pemanfaatan model instrumen pengukuran berpikir kritis dapat digunakan sebagai referensi bagi kalangan dosen di Perguruan Tinggi Indonesia untuk rumpun ilmu geografi.

Kata Kunci: Asesmen, Energi Terbarukan, Model, Berpikir Kritis, Geografi.

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**ASSESSMENT MODEL OF RENEWABLE ENERGY POTENTIAL BASED
ON WATER RESOURCES TO MEASURE CRITICAL
THINKING OF GEOGRAPHY STUDENTS
(Case Study in Cipunagara Watershed, West Java Province)**

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ABSTRACT

The Cipunegara watershed landscape has very complex characteristics from the aspects of hydrology, morphology, topography, rainfall, erosion rates, geology and land use. This complexity can be utilized to develop power plants as national renewable energy needs and can be transformed as a means of supporting the measurement instrument model in universities to create meaningful learning. The objectives of this study include (1) Analyzing the landscape characteristics of the Cipunegara watershed and assessing the potential for renewable energy as a source of electrical energy; (2) Developing a landscape potential assessment model for water resource-based renewable energy as geographic literacy and analyzing the level of accuracy of the assessment of landscape potential for water resource-based renewable energy in the Cipunegara watershed; (3) Analyzing the results of critical thinking measurements and knowing the formulation of a landscape potential assessment model for renewable energy based on water resources using a geospatial approach and empirical approach in Geography students. The methods used are descriptive, evaluative and experimental with a Research and Development (R&D) approach. Meanwhile, the development of a hypothetical model with the ADDIE approach. The results showed (1) The characteristics of the Cipunegara watershed landscape, especially the upstream part of the river, were identified if observation location 2 with the largest weighting score of (70%) was very feasible to develop renewable energy based on several aspects of the study; (2) The development of the EBT potential assessment model for students' critical thinking skills was tested and feasible to use using the ADDIE model development stages; (3) The results of measuring critical thinking in class A with geospatial-empirical treatment had a higher tendency than class B with empirical treatment. Based on some of the research results, it is recommended that several parties such as BWWS Citarum be taken into further consideration in developing the potential of renewable energy in the Cipunegara watershed and the utilization of the critical thinking measurement instrument model can be used as a reference for lecturers in Indonesian universities for geography.

Keywords: Assessment, Renewable Energy, Model, Critical Thinking, Geography

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MODEL ASSES MEN POTENSI ENERGI TERBARUKAN BERBASIS SUMBERDAYA AIR UNTUK PENGUKURAN BERPIKIR KRITIS MAHASISWA RUMPUN GEOGRAFI (Studi Kasus di DAS Cipunagara, Jawa Barat)

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