

PENGEMBANGAN BAHAN AJAR SAINS DENGAN MUATAN
LOW CARBON EDUCATION UNTUK MENINGKATKAN
LITERASI LINGKUNGAN CALON GURU IPA

DISERTASI

diajukan untuk memenuhi sebagian syarat memperoleh gelar
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Pengembangan Bahan Ajar Sains Dengan Muatan *Low Carbon Education* Untuk Meningkatkan Literasi Lingkungan Calon Guru IPA

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ABSTRAK

Perubahan iklim dan pemanasan global merupakan masalah utama lingkungan saat ini akibat tingginya emisi CO₂ dari aktifitas manusia. Penelitian ini bertujuan untuk mengembangkan sebuah bahan ajar sains yang terintegrasi muatan *low carbon education* untuk meningkatkan literasi lingkungan calon guru IPA. Metode penelitian yang digunakan yaitu *design and development research* (DDR) yang mencakup beberapa proses yakni analisis, studi pendahuluan, pengembangan dan validasi, implementasi dan evaluasi. Penelitian ini berhasil merumuskan kerangka logika (*logical framework*) serta struktur umum bahan ajar, dan mengembangkan bahan ajar sains bermuatan *low carbon education*. Tingkat kelayakan bahan ajar ini masuk dalam kategori sangat valid dan sangat layak digunakan dalam perkuliahan. Hasil implementasi dan evaluasi menunjukkan bahwa bahan ajar sains bermuatan *low carbon education* memiliki dampak positif pada pengetahuan lingkungan calon guru IPA, dan juga mampu meningkatkan literasi lingkungan calon guru IPA pada semua komponen yang diukur dengan kategori tinggi.

Kata kunci: bahan ajar, pendidikan sains, *low carbon education*, literasi lingkungan, calon guru IPA

ABSTRACT

Climate change and global warming are major environmental problems today due to high CO₂ emissions from human activities. This research aims to develop a science teaching material that integrates with low carbon education content to improve the environmental literacy of prospective science teachers. The research method used is design and development research (DDR) which includes several processes namely analysis, preliminary study, development and validation, implementation, and evaluation. This study successfully formulated logical frameworks as well as general structures of teaching materials and developed science teaching materials with low carbon education content. The level of eligibility of these teaching materials falls into the category of very valid and very worthy to use in lectures. The results of implementation and evaluation showed that science teaching materials with low carbon education content have a positive impact on the environmental knowledge of prospective science teachers, and are also able to improve the environmental literacy of prospective science teachers on all components that measured by high categories.

Keywords: *teaching material, science education, low carbon education, environmental literacy, prospective science teachers*

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