

CERTIFICATE

7th BIOMASS WORKSHOP-ASIA

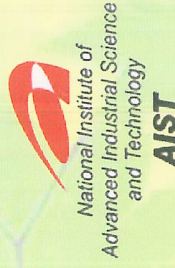
This is to certify that

NOVIZAR NAZIR

has participated as
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7th BIOMASS-ASIA WORKSHOP



NEW ENERGY FOUNDATION



Agency for the Assessment and Application of Technology

Jakarta, November 29 – December 1, 2010
Auditorium, BPPT 2nd Building, 3rd Floor
Jl. MH Thamrin 8 Jakarta, Indonesia

Agency for the Assessment and Application of Technology
Center for Energy Resources Technology Development

Director,

DR. M. A. M. OKTAUFIK

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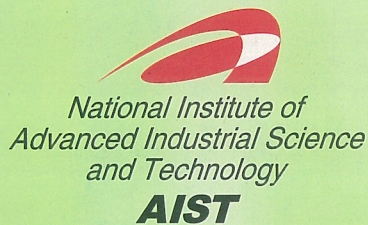
**7th Biomass
WORKSHOP Asia**

**&
Asia-Biomass Researchers
Capacity Building Conference**

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“Biomass as Sustainable Energy”

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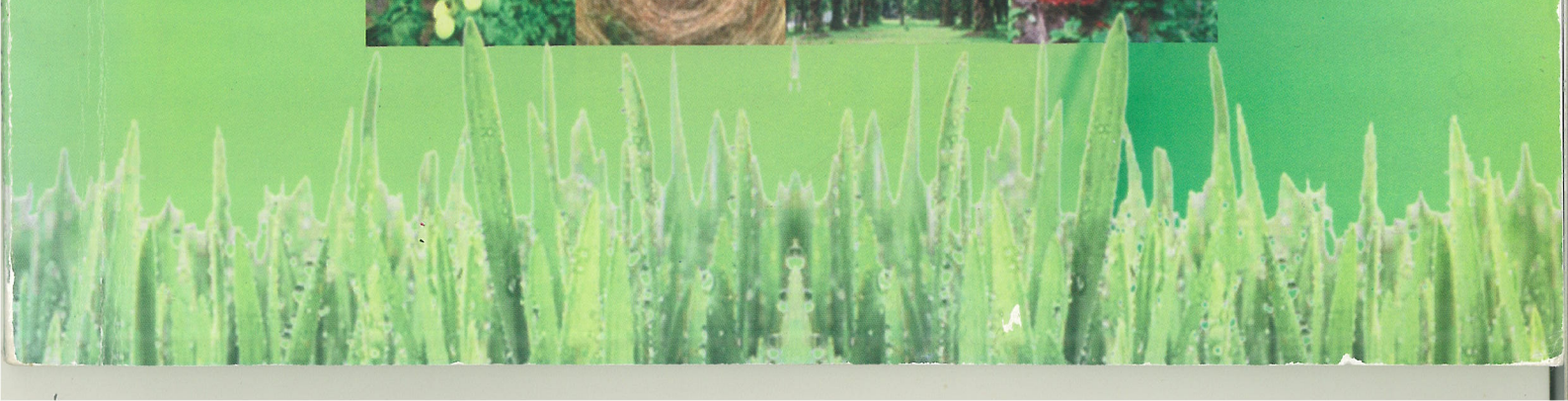


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BPPT, Jakarta Indonesia
November 29 - December 1, 2010

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Jakarta, Indonesia

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Life Cycle Assessment of Biodiesel Production from Palm Oil and Jatropha Oil in Indonesia

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ABSTRACT

Biodiesel production has been considered one of the most promising renewable resources for transportation fuel in Indonesia. Palm oil and *Jatropha curcas* oil are expected as high potential of energy crop in Indonesia. However, from the life cycle aspect, the growth of energy crops has raised concerns due to their high consumption of conventional fuels, fertilizers and pesticides, the materials and energy for processing, and the emissions and wastes which have been released to the environment. Therefore, it is necessary to quantify and verify the energy efficiency and the environmental impacts of biodiesel production from the life cycle point of views. Thus, the objectives of this paper are to develop the life cycle inventory database of palm oil and jatropha biodiesel and analyze the environmental impacts by using the concept of life cycle thinking. As the results, the life cycle environmental impacts of palm oil and jatropha biodiesel are compared and discussed. It is obviously found that the cultivation process contribute to the highest environmental impacts compared with other stages in the life cycle. The results showed that palm oil consume much higher fossil-based energy than jatropha. The highest fossil-based energy consumption was in the transesterification process, followed by the plantation, and transportation.

Keywords: *jatropha curcas*, palm oil, biodiesel, life cycle assessment