

SESSION THREE ORAL PRESENTATION C

Potential of carbon sequestration by carbonizing wood residue from industrial tree plantation as a Clean Development Mechanism project in the Kyoto Mechanism

Yasuyuki Okimori¹, Fumio Takahashi¹, Makoto Ogawa¹, Toru Yamanaka²

¹Kansai Environmental Engineering Center Co., Ltd. 8-4 Ujimatafuri, Uji, 611-0021 Japan
Phone: +81-774-215001 Fax: +81-774-215005

²The Kansai Electric Power Co., Inc. 3-3-22, Nakanoshima, Kita-ku, Osaka, 530-8270 Japan
Phone: +81-6-6441 8821 Fax: +81-6-6441-3549

Abstract:

Approximately half of the carbon in woods can be fixed to charcoal by carbonization, and charcoal is useful as an agent of soil amendment, water purification, etc. We proposed a project of Carbon sequestration by Forestation and Carbonization (CFC) as Kyoto Mechanism projects, which involves biomass utilization and land conservation by incorporating the carbonization of biomass residue and waste from tree plantations and wood industries, and also the utilization of carbon products in various fields.

We have been conducting a feasibility and demonstration study in cooperation with the existing projects of a large-scale *Acacia mangium* tree plantation and pulp production in South Sumatra, Indonesia. The project on biomass utilization and forest conservation is aiming at a Clean Development Mechanism (CDM) project. If conventional charcoal-making methods are used, a total of 368,000 t yr⁻¹ of biomass residue and waste could be transformed into charcoal of 77,000 t yr⁻¹, and the carbon emission reductions by the project reaches 62,000 t-C yr⁻¹ (or 230,000 t-CO₂ yr⁻¹) in consideration of the project baseline. The other influences of the project were investigated on the natural and socio-economic environments. The soil fertility in man-made forests and agricultural field could be maintained by returning charcoal to the original fields. This charcoal project could provide jobs for approximately 2,600 people, and opportunity for local peasants to develop crop farming. Therefore, the project would be beneficial to the regional economy. Meanwhile, it still needs further investigation on how we spread a mass of charcoal application in the field, monitor the amount of applied charcoal, etc.

Conclusion:

Although many specific issues still need to be examined before the implementation of this project as a profitable business and/or a CDM project, the basic idea of the CFC project seems useful and promising from the following perspectives:

- I. The charcoal business basically involves conventional and relatively simple techniques, but without incurring too much cost.
- II. Charcoal of uniform quality can be produced from one kind of material, *Acacia mangium*.
- III. Obtaining laborers from the local community is easy, and the charcoal business can create new job opportunities.
- IV. Various new uses of charcoal are being developing in some countries.
- V. The charcoal market has the potential to expand domestically, in Indonesia, as well as overseas.