



**The World Bank  
Carbon Finance Unit**

**Determination on Monitoring Report**  
**- for Year 2007 -**

**Fourth Periodic Determination on  
Monitoring  
of  
Bulgaria Svilosa Biomass Project**

**May 15, 2008**

**JCI CDM Center**

**Report No. JCI-CDM-DOM-07/017**

**Revision No. 01**

|  |   |
|--|---|
| Date of first issue:<br>April 2, 2008      | Project No.:<br>2003-JCI-CDM-DOM-07/017 |
| Approved by:<br>YOSHIDA Akio               | Organisational unit:<br>JCI CDM Center  |
| Client:<br>World Bank, Carbon Finance Unit | Client ref.:                            |

## Summary:

After the desk review for the monitoring report 2007 prepared by Svilocell Company which was submitted to JCI on January 24, 2008, JCI Assessment Team has done the on-site assessment of 4th periodic verification at Svilosa Site, Bulgaria during March 6 to March 7, 2008 for the Bulgaria Svilosa Biomass Project.

The summary of the 4th Periodic Determination on Monitoring through the on-site assessment are shown below and detailed in this report and the attachments.

1. Progress status of one (1) FAR which has been addressed as 3P-FAR-1 at the 3rd Periodic Verification are confirmed and the FAR is cleared as shown in the attached Non-Conformance (NC) Forward Action Request and the Clearance Report Forms. (Annex 2)
2. Total Project Emissions reductions (tonnes CO<sub>2</sub>e) :  
Project Emissions reductions, amount **33,053 tonnes CO<sub>2</sub>e** was verified appropriately for the period of January, 2007 to December, 2007 which is requested in the summary sheet of the Workbook of the monitoring report.
3. FAR and CLAR was not addressed as the findings through the 4th Periodic Determination on Monitoring.

|   |                        |
|---|------------------------|
| Report No.:<br>JCI-CDM-DOM-07/017   | Subject Group:         |
| Report title:<br>4th Periodic Determination on Monitoring of the Bulgaria Svilosa Biomass Project |                        |
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| Date of this revision:<br>May 15, 2008  | Rev. No.:<br>Rev-01    |
|   | Number of pages:<br>10 |

## Indexing terms

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## Abbreviations

|        |  |
|--------|--|
| CAR    | Corrective Action Request                              |
| CDM    | Clean Development Mechanism                            |
| CFU    | Carbon Finance Unit, World Bank                        |
| EMS    | Environment Management Plan                            |
| ER     | Emission Reduction                                     |
| ERU    | Emission Reduction Unit                                |
| ERPA   | Emission Reductions Purchase Agreement                 |
| FAR    | Forward Action Request                                 |
| GHG    | Green House Gas  |
| IETA   | International Emission Trading Association             |
| JCI    | Japan Consulting Institute                             |
| JI     | Joint Implementation                                   |
| MMS    | Management and Monitoring System                       |
| MP     | Monitoring Plan  |
| OE     | Operational Entity                                     |
| PDD    | Project Design Document                                |
| PT     | Performance Test                                       |
| QA     | Quality Assurance                                      |
| QC     | Quality Control  |
| SPS    | Svilosa Power Station AD (CHPP)                        |
| TOR    | Terms of Reference                                     |
| UNFCCC | United Nations Framework Convention for Climate Change |

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Annex 1: 4th Periodic Determination on Monitoring Checklist

Annex 2: Non-conformance (NC), Forward Action and Clearance Report (3P-FAR) at the 3rd Periodic Verification

Annex 3: Summary of On-site Assessment

1) Summary of On-site Assessment

2) Main Documents / Data List obtained during the On-site Assessment

Annex 4 Annual Report (2007)

Annex 5 Excel Worksheet (2007)

# 1 INTRODUCTION

As a Applicant Independent Entity (AIE), Japan Consulting Institute (JCI) performed the 4th Periodic Determination on Monitoring of Bulgaria Svilosa Biomass Project receiving an order from CFU for the execution of two times Periodic Determination on Monitoring on the project. This 4th Periodic Determination on Monitoring is performed on the basis of TOR of CFU and currently valid conditions of CDM / JI stated in Kyoto Protocol, Marrakech Accords and the decisions of CDM Executive Board.

## Verification Team

|              |                          |
|--------------|--------------------------|
| Team Leader  | : SATO Hideyuki          |
| Team Member  | : OKADA Masaki           |
| Team Member  | : SAKAI Yoshihisa        |
| Team Member  | : Vldamir Kanev          |
| Local Expert | : Todor Georgiev Donchev |

## 1.1 Objective

Objective of the 4th Periodic Determination on Monitoring is to review and verify whether all the project activities are implemented as planned, i.e., all the physical features of the project including monitoring system are in place and fully functional, project has been operated smoothly without any serious trouble, monitoring of the data has been carried out fairly and the GHG data of high quality have been collected and reported as originally planned through the period of January, 2007 to December, 2007 under a risk management at sufficient level.

## 1.2 Scope

JCI has performed the 4th Periodic Determination on Monitoring of the Bulgaria Svilosa Biomass Project according to the requirement of CFU set as part of the MP for this specific project. Progress of the project, establishment and implementation of the quality assurance system and the procedures of data management / control system have been assessed on site in accordance with the IETA / PCF Validation and Verification Manual / Check List. The monitoring data and the result of the Workbook calculation prepared by Svilocell Company as the basis of the assessment of the 4th Periodic Determination on Monitoring Report has also been reviewed. Additionally, this 4th Periodic Determination on Monitoring is based on currently valid documentation of UNFCCC. In this context, the relevant documents are the “Marrakech Accord” and the decision of COP/MOP.

## 1.3 Description of the Project Activity

|                                   |  |
|-----------------------------------|--|
| Project Parties:                  | Bulgaria, The World Bank CFU   |
| Title of project activity:        | Bulgaria, Svilosa Biomass Project  |
| Project Entity:                   | Svilocell Company  |
|                                   | 5253 Svishtov, Bulgaria  |
|                                   | TEL: 359 631 /2 27 81  |
|                                   | E-mail address: <a href="mailto:antonov@svilosa.bg">antonov@svilosa.bg</a> |
|                                   | Quality Manager : Mr. Lyusi Antonov  |
| Location of the project activity: | 5253 Svishtov, Bulgaria  |

## Outline of the Project

Svilocell Company has introduced and commissioned a boiler fuelled with the biomass waste originated from the timber supplied to the plant as a raw material for the pulp production in the plant. The steam generated from the biomass boiler is supplied to the pulp plant to substitute partially the steam which has been supplied from the existing coal fired thermal power station belongs to the Svilosa Power Station AD as the sole heat energy source to the pulp plant. Utilization of the biomass waste as the heat energy source of the pulp plant brings an effect to of GHG reduction in two ways.

Firstly, fuel coal consumption in the thermal power station is reduced because of the decreased heat demand by the pulp plant with the effect of heat produced by the biomass boiler and CO<sub>2</sub> emission from combustion of the fuel coal is reduced accordingly.

Secondary, consumption of timber waste in the biomass boiler reduces the amount of waste disposal as stockpile to compose a source of CH<sub>4</sub> emission.

Those two effects are planned to bring GHG emission reductions of total minimum 450,000 tonnes CO<sub>2</sub>e as a result of the project activity though the project life, i.e., 2004 to 2012.(First Amendment ERPA)

## 2 METHODOLOGY

The IETA / PCF Validation and Verification Manual / Checklist are utilised to secure the transparency and credibility of the verification. The 4th Periodic Determination on Monitoring Checklist, reinforced with the additional items to cover the check points required to be verified specifically for the project, covers following items and helps the verifier to perform the work with high degree of credibility.

Areas covered by the checklist

- (1) Required Basic data
- (2) Data Management System / Controls
- (3) GHG calculation procedures and management control testing
- (4) Detailed audit testing of residual risk areas and random testing

4th Periodic Determination on Monitoring Checklist is utilized as follows

- (1) Systemizing, detailing and clarifying the conditions of Emission Reduction Purchasing
- (2) Securing the transparency of the verification process on the documentation of the result.
- (3) Securing the credibility of the verification based on the designated standard.

First of all, the desk review was performed based on the following monitoring report and the annual report prepared by Svilocell Company which was submitted on January 24, 2008.

- (1) The year 2007 data according to the MP of the Project
- (2) The result of the Workbook calculation
- (3) The annual report 2007

After the desk review, the On-site Assessment was performed.

### **Duration of verification**

Desk review:                      From January 24, 2008 to February 20, 2008

On-site Assessment:          From March 6, 2008 to March 7, 2008

Reporting:                        From March 11, 2008 to March 31, 2008

### **2.1 Review of Documentation**

Following documents and data are reviewed in order to verify the project activities at the desk review and the site.

- (1) Monitoring report
- (2) Annual report

- (3) Organization Chart
- (4) Management Manual
- (5) Calibration and maintenance record of key instruments
- (6) General information about operation of CHPP
- (7) Contract for the data presentation between SPS and Svilocell Co.
- (8) Data of avoided fuel coal consumption in CHPP
- (9) Workbook
- (10) Actual operation results of CHPP
- (11) Total amount of steam supplied to cellulose plant
- (12) Total fuel consumption in the power station
- (13) Average fuel heat value
- (14) Key input data
- (15) Manual input data
- (16) Shutdown record of the plant
- (17) Record of failure and/or mal function of monitoring instrument

## 2.2 Site Visits

Assessment team has visited the site for On-Site Assessment from March 6, to March 7, 2008. The objectives of the assessment is to verify that the project is implemented, monitored and reported as planned.

The interviewed persons at the site are described in following Table 2.1 and the Summary of the On-site Assessment in Annex 3.

Table 2.1 List of Interviewed Persons

|                            | Organization  | Name of person       | Title  |
|----------------------------|---------------|----------------------|--|
| <b>Project Participant</b> | Svilocell Co. | Mr. Yordan Gaidarov  | Project Manager,<br>Managing Director Production |
|                            |               | Mr. Lyusi Antonov    | Quality Manager                                  |
|                            |               | Ms. Diana Ganeva     | Head of Energy Projects                          |
|                            |               | Ms. Bilyana Borisova | Specialist contracts and deliveries              |

## 2.3 Assessment

The Assessment has been done as follows;

- (1) Investigation of whether all relevant equipment are operated properly, function as anticipated and are maintained fairly.
- (2) Confirmation of environmental and social impacts.
- (3) Interviews with the Project management, QA manager and operating and maintenance staffs.
- (4) Observations in order to check the risks for inappropriate operation and data collection procedures.
- (5) Reviews on information flows for generating, aggregating /collecting and reporting the selected monitored parameters.



- (6) Check the monitoring report/annual report data and the relevant raw data.
- (7) Comparison with the data inputted in the Workbook prepared by the person be in charged input and the operation data collected by the operators.
- (8) Re-calculation of GHG emission reductions by using the Workbook attached in the MP and the monitoring report /Workbook submitted on January 24, 2008.
- (9) Check the evidence to be provided by the project owners that demonstrates that all metering equipments are calibrated.
- (10) Auditing of the required procedures, routines, and documentations to check their proper application.
- (11) Assessment of all the data collection, analysis and transmission procedures all along the chain from the project facilities to CFU, in order to ensure that CFU receives relevant, complete and synthetic information to execute payments under the confidential Emission Reductions Purchase Agreement.
- (12) Verification of FAR from the 3rd Verification Report

## 2.4 Reporting of Findings

Findings established during the verification may be that:

- i) the verification is not able to obtain sufficient evidence for the reported emission reductions or part of the reported emission reductions. In this case these emission reductions shall not be verified and certified;
- ii) the verification has identified material misstatements in the reported emission reductions. Emission reductions with material misstatements shall be discounted based on the verifier's ex-post determination of the achieved emission reductions.

A Forward Action Requests (FAR) should be issued, where:

- the actual project monitoring and reporting practices requires attention and /or adjustment for the next consecutive verification period, or
- an adjustment of the MP is recommended.

In the context of FARs, risks have been identified, which may endanger the delivery of high quality AAUs and ERUs in the future, i.e. by deviations from standard procedures as defined by the MP. As a consequence, such aspects should receive a special focus during the next consecutive Determination on Monitoring. A FAR may originate from lack of data sustaining claimed emission reductions.

### 3 DETERMINATION ON MONITORING FINDINGS

#### 3.1 Remaining Issues, CARs, FARs from Previous Validation or Verification

Progress status of One (1) FAR which has been addressed as 3P-FAR-1 at the 3rd Periodic Determination on Monitoring was confirmed and the FAR is cleared as shown in attached Non-Conformance (NC), Forward Action Request and Clearance Report Form (Annex 2).

#### 3.2 Project Implementation

The following subjects were discussed.

- 1) Operating and Maintenance conditions
- 2) Equipment conditions

No CARs or FARs were addressed.

#### 3.3 Completeness of Monitoring

The following subjects were discussed.

- 1) Improvement to the technological computer system

No CARs or FARs were addressed.

#### 3.4 Accuracy of Emission Reduction Calculations

The following subjects were discussed.

- 1) Upgrading of the Workbook
- 2) Upgrading of the Management Manual according to the upgrading of the Workbook

No CARs or FARs were addressed.

#### 3.5 Quality of Evidence to Determine Emission Reductions

The following subjects were discussed.

- 1) Check of the input data, the operation data and the source data including the external data
- 2) Check of the daily log sheet

No CARs or FARs were addressed.

#### 3.6 Management System and Quality Assurance

The following subjects were discussed.

- 1) Organization chart, responsibilities and roles
- 2) Data flow diagrams
- 3) Reporting procedure
- 4) Management Manual
  - (i) Internal audit

- (ii) Training program and the record for the all staffs
- (iii) Handling of the input data to the Workbook and the operation data/the source data
- (iv) Change of the Management Manual

No CARs or FARs were addressed.

## 4 PROJECT SCORECARD

Project Scorecard shows the conclusion of risk analysis for 4th Periodic Determination on Monitoring in the following Table 4.1.

Table 4.1 Project Scorecard

| Objectives                            | Key aspects for Determination on Monitoring | Scope of Sampling      | Results of data review   | Conclusion                |
|---------------------------------------|---|------------------------|--|---------------------------|
| Emission Sources                      | Completeness                                | All sources            | Monthly Protocols and Yearly Protocol for all Emission sources during 2007 are checked.<br>1) Heat production by biomass boiler<br>2) Process heat production of CHP<br>3) Total electricity generation of CHP<br>4) Delivery of wood  | OK<br><br>Risk Level: LOW |
| Calculation Equation                  | Conformity                                  | All Equations          | All Equations are defined and protected in the excel sheet of the Workbook.  | OK<br><br>Risk Level: LOW |
| Default Values, Emission Coefficients | Conformity                                  | All values             | All default values and Emission Coefficients are checked and confirmed. Yearly Protocol for Emission coefficients for 2007 are checked and confirmed:<br>1) CO2 emission factor of coal<br>2) Calorific value of coal<br>3) CHP thermal Efficiency<br>4) Blended wood consumption ratios   | OK<br><br>Risk Level: LOW |
|                                       | Accuracy                                    | All values             |  | OK<br>Risk Level: LOW     |
| Monitored data                        | Accuracy                                    | Sampling from all data | Monthly Protocols for Monitored data during 2007 are checked. Those data are the sum of hourly/daily data records. Data is crosschecked against commercial records and Graphic output of heat production of biomass boiler computer system for boiler operation.<br>1) Heat production by biomass boiler<br>2) Process heat production of CHP<br>3) Total electricity generation of CHP<br>4) Delivery of wood<br>5) Pulp production | OK<br><br>Risk Level: LOW |
|                                       | Substantiality                              | Sampling from all data | Monthly Protocols for all Emission sources during 2007 are checked. Hourly/Daily records are checked with sampling and obtained the copies of those.   | OK<br><br>Risk Level: LOW |
|                                       | Completeness                                | All data               | Ditto  | OK<br><br>Risk Level: LOW |
| Calculation in the Monitoring Report  | Accuracy                                    | All calculation        | No errors found.   | OK<br>Risk Level: Low     |

| Objectives                                | Key aspects for Determination on Monitoring | Scope of Sampling | Results of data review | Conclusion               |
|---|---|-------------------|------------------------|--------------------------|
| Numerical values in the Monitoring Report | Accuracy                                    | All values        | No errors found.       | OK<br>Risk Level:<br>Low |

## 5 DETERMINATION ON MONITORING STATEMENT

### Introduction

JCI has been engaged by the CFU to examine the greenhouse gas (GHG) emission reductions reported from Svilocell Company for the period, January, 2007 to December, 2007, equating to **33,053** tonnes of CO<sub>2</sub> equivalents.

Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported for the year ended December, 2007.

### Responsibilities of Svilocell Company and JCI

The management of the Svilocell Company is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project Monitoring and Verification Plan dated October, 2002. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project is the responsibility of the management of Svilocell Company.

It is JCI's responsibility to express an independent GHG determination on monitoring opinion on the GHG emissions from the project for the year ended December, 2007 and on the calculation of GHG emission reductions from the project for the year ended December, 2007 based on the verified emissions for the 2007.

### Basis of GHG determination on monitoring opinion

JCI's determination on monitoring approach was based on the requirements as defined under the Kyoto Protocol, Marrakech accord, as well as those defined by the CDM Executive Board/JI Supervisory Committee.

JCI's approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. JCI's examination includes assessment, on a test basis, of evidence relevant to the amounts and disclosures in relation to the project's GHG emission reductions for the year ended December, 2007.

We planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that the amount of GHG emission reductions for the year ended December, 2007, prepared on the basis of the MP dated October, 2002, are fairly stated.

We conducted our assessment having regard to the Project Design Document including Svilos Biomass Project's MP dated October, 2002. This assessment includes:

- collection of evidence supporting the reported data

- checking whether the provisions of the MP dated October, 2002, were consistently and appropriately applied

We have verified whether the information from Svilocell Company is current and has been correctly extracted from the Project Design Document. And we have verified whether the emissions reduction achieved has been determined correctly.

### Opinion

Based on the information we have seen and evaluated.

It is our opinion that the amount of **33,053 tonnes of CO2 equivalents** indicated in the monitoring report during the period of January, 2007 to December, 2007 can be justified appropriately as the result of the 4th Periodic Determination on Monitoring.

## 6 REFERENCES

List of the Main Documents / Data provided by Svilocell Company is as follows.

|     |   |
|-----|---|
| /1/ | Monitoring Report “SVILOSА” AD-Svishtov, Bulgaria Svilosa biomass Project, January 2008                       |
| /2/ | Calculation result of Workbook , 2007/1/24  |
| /3/ | Annual Report for generated Carbon Emissions January 2008   |
| /4/ | Protocol for the data of heat produced by Svilosa Power Station and the Boiler efficiency dated December 2007 |
| /5/ | Biomass Boiler monthly Steam production Charts and records  |
| /6/ | Daily operational records on November 11, 2007  |
| /7/ | Calibration certificates of measuring equipment for biomass boiler project                                    |

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