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# DETERMINATION REPORT

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## DETERMINATION OF THE SAWDUST 2000 PROJECT.

REPORT No. DEPA-1  
REVISION No. 01

## DETERMINATION REPORT

Date of first issue: 16-02-05	Project No.: DEPA-1
Approved by:	Organisational unit:
Client: Danish Environmental Protection Agency	Client ref.:

Summary:

**Unqualified Validation Opinion**

This report presents the findings of the determination of the Sawdust 2000 project against Decisions 16 and 17 CP7 of the Marrakech Accords and Article 6 of the Kyoto protocol.

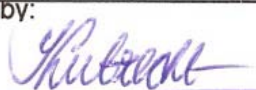
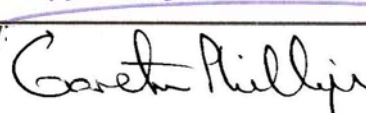
The report is based on the findings of document reviews, the stakeholder consultation process and responses from Grue & Hornstrup Consulting Engineers to the findings raised in this report.

This report has been completed following the receipt of a revised PDD, Baseline Study, Monitoring Plan and Stakeholder Report in January 2005. In October 2002 a draft validation checklist has been submitted which described a total of 12 findings which include:

- 2 MAJOR Corrective Action Requests;
- 2 MINOR Corrective Action Requests; and
- 1 Observation and 7 Clarifications.

Steps have been taken to close out 11 of those findings. One Observation remains outstanding. On the basis of these findings, this report provides the justification for the recommendation of an Unqualified Validation Opinion. This report will highlight the issues raised in 2002 briefly.

The Validation Opinion is based on the current and emerging rules surrounding Article 6 of the Kyoto Protocol. Attention is drawn to the fact the JI Supervisory Committee may yet issue guidance on the choice of baseline methodology and such guidance may have a bearing upon this validation opinion.

Report No.: JI.VAL0028	Subject Group:	
Report title: Determination of the Sawdust 2000 project		
Work carried out by: Irma Lubrecht 		
Work verified by: 		
Date of this 22-02-05	Rev. No.: 1	Number of 16

### Indexing terms

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- Unrestricted distribution

### **Abbreviations**

*Explain any abbreviations that have been used in the report here.*

CAR	Corrective Action Request
CL	Clarification
COP	Conference of the Parties (to the Convention)
EIA	Environmental Impact Assessment
ERUs	Emissions Reductions Units
JI	Joint Implementation
KP	Kyoto Protocol
MP	Monitoring Plan
PDD	Project Design Document
SGS	Société Générale de Surveillance
UNFCCC	United Nations Framework Convention on Climate Change

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Appendix I: Determination Protocol

## 1 INTRODUCTION

### 1.1 Objective

The Danish Environmental Protection Agency has commissioned SGS to validate the Sawdust 2000 Project. The validation focuses on project design against Decision 16 and under the twin track approach, Decision 17 CP 7 of the Marrakech Accords.

The purpose of validation is to have an independent third party assess the project design. In particular, the project baseline, the Monitoring Plan and its compliance with relevant and UNFCCC, Kyoto Protocol and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Determination is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reduction units (ERUs). In addition, the Validation is used to review the basis and methods used to project Emission Reductions (ERs) over the lifetime of the project. The findings of this review do not constitute a guarantee of the number of ERs that the project may generate.

### 1.2 Scope

The determination scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. SGS has, based on the recommendations in the Validation and Verification Manual employed a risk-based approach in the determination, focusing on the identification of significant risks for project implementation and the generation of ERUs.

The determination is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

#### **Documents reviewed as Part of Scope**

Sawdust 2000 – Project Design Document. Version 3, 5<sup>th</sup> January 2005.

Sawdust 2000 – Project Implementation. Baseline Study Version 3, 5<sup>th</sup> January 2005.

Sawdust 2000 – Project Implementation. Monitoring Plan. Version 4, 5<sup>th</sup> January 2005.

### 1.3 GHG Project Description

The project entitled "Sawdust 2000" involves fuel switch and methane reduction sub-projects in the Romanian district heating sector. The project aims to:

- Reduce CO<sub>2</sub> and CH<sub>4</sub> emissions;
- Reduce uncontrolled and illegal dumping of sawdust;
- Introduce a complete rehabilitation of the district heating systems in 5 Romanian towns; and
- Improve comfort level in buildings.

## METHODOLOGY

The determination may consist of the following three phases:

- I a desk review of the project design documentation
- II follow-up interviews with project stakeholders
- III the resolution of outstanding issues and the issuance of the final determination report and opinion.

DEPA has posted the PDD (version October 2002) for stakeholder comments from Check.

The PDD was validated by document review in October 2002. Several Corrective Action Requests were raised. In January 2005, SGS received updated versions of the project documents to close out the CARs.

The results of the determination are recorded against the JI Validation Protocol (Annex 1.

Findings established during the determination can either be seen as a non-fulfilment of determination protocol criteria or where a risk to the fulfilment of project objectives is identified. Corrective Action Requests (CAR) are issued, where:

- i) mistakes have been made with a direct influence on project results;
- ii) determination protocol requirements have not been met; or
- iii) there is a risk that the project would not be accepted as a JI project or that emission reductions will not be verified.

The term Clarification may be used where:

- iv) additional information is needed to fully clarify an issue.

In order to ensure transparency, a determination protocol was customised for the project, according to the Validation and Verification Manual. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The determination protocol serves the following purposes:

- It organises, details and clarifies the requirements a JI project is expected to meet;
- It ensures a transparent determination process where the independent entity will document how a particular requirement has been validated and the result of the determination.

The determination protocol consists of three tables. The different columns in these tables are described in Figure 1. The completed determination protocol is enclosed in Annex 1 to this report.

<b>Determination Protocol Table 1: Mandatory Requirements</b>			
<b>Requirement</b>	<b>Reference</b>	<b>Conclusion</b>	<b>Cross reference</b>
<i>The requirements the project must meet.</i>	<i>Gives reference to the legislation or agreement where the requirement is found.</i>	<i>This is either acceptable based on evidence provided (OK), or a <b>Corrective Action Request (CAR)</b> of risk or non-compliance with stated requirements. The corrective action requests are numbered and presented to the client in the determination report.</i>	<i>Used to refer to the relevant checklist questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent determination process.</i>

<b>Determination Protocol Table 2: Requirement checklist</b>				
<b>Checklist Question</b>	<b>Reference</b>	<b>Means of verification (MoV)</b>	<b>Comment</b>	<b>Draft and/or Final Conclusion</b>
<i>The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in six different sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.</i>	<i>Gives reference to documents where the answer to the checklist question or item is found.</i>	<i>Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.</i>	<i>The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.</i>	<i>This is either acceptable based on evidence provided (OK), or a <b>Corrective Action Request (CAR)</b> due to non-compliance with the checklist question (See below). <b>Clarification</b> is used when the independent entity has identified a need for further clarification.</i>

<b>Determination Protocol Table 3: Resolution of Corrective Action and Clarification Requests</b>			
<b>Draft report clarifications and corrective action requests</b>	<b>Ref. to checklist question in table 2</b>	<b>Summary of project owner response</b>	<b>Determination conclusion</b>
<i>If the conclusions from the draft determination are either a Corrective Action Request or a</i>	<i>Reference to the checklist question number in Table 2 where the Corrective Action</i>	<i>The responses given by the Client or other project participants during the communications with</i>	<i>This section should summarise the independent entity's responses and final conclusions. The</i>

<b>Determination Protocol Table 3: Resolution of Corrective Action and Clarification Requests</b>			
<b><i>Draft report clarifications and corrective action requests</i></b>	<b><i>Ref. to checklist question in table 2</i></b>	<b><i>Summary of project owner response</i></b>	<b><i>Determination conclusion</i></b>
<i>Clarification Request, these should be listed in this section.</i>	<i>Request or Clarification Request is explained.</i>	<i>the independent entity should be summarised in this section.</i>	<i>conclusions should also be included in Table 2, under "Final Conclusion".</i>

**Figure 1 Determination protocol tables**



#### 1.4 Review of Documents

The team started with the determination of this project in October 2002. Several Corrective Action Requests were raised. In January 2005, SGS received updated versions of the project documents to close out the CARs.

The Project Design Document (version January 2005) was reviewed by the team. The second draft validation protocol was sent to the client at the end of January 2005.

Following consultation with the client it was decided that the expert would undertake a site visit to gather more information and to interview project people.

#### 1.5 Follow-up Interviews

Follow-up interviews were held with:

- Søren Jellesø (Grue & Hornstrup).

**Table 1 Interview topics**

Interviewed organisation	Interview topics
Grue & Hornstrup	➤ All areas of the PDD, topics listed in Annex 1
DEPA	➤ Topics related to mandatory requirements of Annex 1

#### 1.6 Resolution of Clarification and Corrective Action Requests

Findings were raised by the assessment team in the second draft of the determination protocol. The client has responded to the team's findings through several emails. One finding remains unsolved and has only been highlighted for the verifier's convenience. More detail in the determination protocol in Annex 1 and in the section below.

## 2 DETERMINATION FINDINGS

At the time of the first draft 2 Major and 2 Minor CARs, 7 Clarifications and 1 Observation were raised. At this moment 1 Observation is outstanding.

To guarantee the transparency of the determination process, the concerns raised and responses provided are summarised in chapter 3 below and documented in more detail in the determination protocol in Annex 1.

Since some modifications to the Project design were necessary to resolve SGS's concerns, Grue & Hornstrup decided to revise the documentation and resubmitted the project design documentation on 5<sup>th</sup> January 2005.

### 2.1 Project design

The project entitled "Sawdust 2000" aims to develop district heating systems in five towns in Romania which are all based on the utilisation of sawdust or other wood waste products.

The project developer had not provided a Letter of Approval from the host government. Consequently a Major CAR (1) had been raised.

Memorandum of Understanding between Denmark and Romania has been signed 28<sup>th</sup> January 2003 and a copy has been provided. Project Agreement has been signed on 7<sup>th</sup> March 2003 and a signed copy has been provided.

Major CAR 1 has been closed out.

### 2.2 Baseline

The project clearly defines the baseline and with-project scenario. The selected baseline is justified on the basis of technical grounds. The project divided itself into two components:

1. Emission reductions from fuel switch; and
2. Emission reductions from avoided methane emissions.

The project distinguishes four possible baselines and selects the second most conservative one using average fuel consumption figures from 1997-2001 and fixing the baseline for 10 years. Regarding avoided methane emissions the project provided three calculation methods from other projects and selects the most conservative one. No N<sub>2</sub>O emissions are claimed in the baseline scenario. Therefore it can be concluded that the baseline is conservative.

Without input from the Danish government it is highly unlikely that the project would have occurred and that the district heating systems in these 5 Romanian towns would have been refurbished.

All findings presented below have been closed out because new and satisfactory information became available in the new version of the PDD, BS and MP.

- It was not possible to carry out recalculations since no raw data were available. It has not been possible to calculate the amount of avoided methane (Major CAR 2).
- Data available in the baseline study showed minor mistakes (Clarification 4) mainly due to rounding errors.
- No details are provided with regards to project emissions such as emissions from combustion of gas to fire up the biomass boilers (Clarification 3 and 6).

- It is unclear how distribution of electricity will occur and what contracts for dispatch to the grid exist. A Minor CAR (3) was raised to highlight this issue.
- No uncertainties have been identified (Clarification 5). It is unclear from the baseline study what kind of uncertainty has been taken into account because the raw data were not available.

No leakage has been identified but leakage is not considered an issue here.

### 2.3 Monitoring Plan

There are no monitoring methodologies for JI project yet.

The monitoring plan provides an overview of emissions to be monitored when the project has been implemented. Project emissions are considered to be nil. The monitoring plan has been divided into CO<sub>2</sub> emissions from substituting fossil fuels and CH<sub>4</sub> emission reductions from avoided digestion of wood stockpiles. Baseline emissions will be monitored by obtaining data from fossil fuel suppliers (amount, type, caloric value and emission factor) which is assumed to be constant over the crediting period of 14 years.

Avoided CH<sub>4</sub> emissions will be calculated by monitoring the amount of wood residues used, the caloric value of the specific wood residue (obtained from a sample) and the generated electricity monitored monthly during a period of 12 months by heat flow meters. From these data it is possible to calculate avoided methane.

The monitoring plan did not provide details of what and how environmental impacts were to be monitored. Clarification is requested.

No details of procedures for QA/QC. A Minor CAR (4) was raised to highlight this issue which will be reviewed prior to the issue of the first ERs when the project is operating.

Monitoring of environmental impacts has been described in the new version of the Monitoring Plan (version 4 – January 2005).

Procedures have been developed. Minor CAR 4 has been downgraded to an Observation to highlight this issue to the verifier.

### 2.4 Calculation of GHG Emissions

The assessment team has reviewed the methodology for quantifying the projections of emission reductions and it was found to be conservative. Clarification was sought about the amount of biomass to be used by the 5 towns to generate the required electricity. Based on the assumptions stated in the text, the estimated amount of avoided emissions is approximately 509,000 t CO<sub>2</sub> during a 10 year crediting period from start 2004 to end 2013.

Calculations are documented but are not always transparent. Sometimes figures in tables are inconsistent and calculations are unclear. It has not been possible to recalculate since no raw data have been submitted. A Major CAR (2) was raised.

Spreadsheet with calculations has been provided and the inconsistencies have been taken care off in the new version of the PDD. Major CAR 2 has been closed out.

At the moment the project is implemented, baseline data will be monitored by obtaining data from fossil fuel suppliers over the year 2003. Avoided methane emissions will be calculated by

the amount of wood residues used, the caloric value of the wood and the total amount of electricity generated.

This review does not amount to a guarantee of the number of credits that the project may be expected to earn.

## **2.5 Environmental Impacts**

No information regarding EIA was presented in the initial baseline document and a clarification (2) is raised to highlight this issue.

An Environmental Impact Assessment is required by the Romanian government. It comprises of Environmental Approval and Environmental Permit. Copies of both have been provided. Clarification 2 has been closed out.

### **3 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS**

DEPA published the project documents on its website in October 2002 and invited comments within 30 days by Parties, stakeholders and accredited observers. One comment was received and has been taken care of through the first draft validation protocol.

No stakeholder consultation had been undertaken but it is assumed that no significant negative comments will be received from the local stakeholders. However, local stakeholder consultation may highlight issues that the project developer has overlooked therefore the project is required to undertake some form of local stakeholder consultation. Clarification (1) is sought from the project developer.

Stakeholder comments have been invited and an overview of comments has been submitted to the validator. Clarification 1 is closed out.

### **4 DETERMINATION OPINION**

The validation engagement has been carried out by means of document review (a detailed assessment of the final version of the PDD against the JI requirements, verification of key assumptions by the expert and the local assessor through a site visit. A number of findings have been raised which have been presented to the Grue & Hornstrup.

At this stage, SGS The Netherlands issues an Unqualified Validation Opinion.

## REFERENCES

### Category 1 Documents:

*List documents provided by the Client that relate directly to the GHG components of the project, (i.e. the Project Design Document and written approval of voluntary participation from the national focal point). These should have been used as direct sources of evidence for the determination conclusions, and are usually further checked through interviews with key personnel.*

- /1/ Sawdust 2000 – Project Design Document. Version 3, 5<sup>th</sup> January 2005.
- /2/ Sawdust 2000 – Project Implementation. Baseline Study Version 3, 5<sup>th</sup> January 2005.
- /3/ Sawdust 2000 – Project Implementation. Monitoring Plan. Version 4, 5<sup>th</sup> January 2005.

### Category 2 Documents:

*List background documents related to the design and/or methodologies employed in the design or other reference documents. Where applicable, Category 2 documents should have been used to check project assumptions and confirm the validity of information given in the Category 1 documents and in follow-up interviews.*

- /4/ Kyoto Protocol
- /5/ Marrakesh Accords
- /6/ IPCC Guidelines

### Persons interviewed:

*List persons interviewed during the determination, or persons contributed with other information that are not included in the documents listed above.*

- /7/ Søren Jellesø

- oOo -

**CORRECTIVE ACTION REQUEST (CAR)  
MAJOR**

PROJECT DEVELOPER: <b>Grue &amp; Hornstrup Consulting Engineers</b>					
JOB NO: 6853-DK		SIT NO: -		CAR NO: <b>1 OF 4</b>	
AUDITOR: Irma Lubrecht		ASSESSMENT DATE: 1 <sup>st</sup> - 8 <sup>th</sup> October 2002			
COMPANY REPRESENTATIVE: Søren Jellessø					
AREA: <b>PARTICIPATION REQUIREMENTS / STAKEHOLDER CONSULTATION / ADDITIONALITY / LEAKAGE / EIA / TRANSBOUNDARY EFFECTS / MONITORING / OTHER (describe)</b>					
DETAILS OF NON-CONFORMANCE: <b>Letter of Approval is not available</b>					
SIGNED		CAR		SIGNED	
COMPANY		PROPOSED		AUDITOR: Irma Lubrecht	
REPRESENTATIVE:		CLOSE OUT DATE: <b>ASAP</b>			
CORRECTIVE ACTION TAKEN TO PREVENT RECURRENCE: Memorandum of Understanding between Denmark and Romania has been signed 28 <sup>th</sup> January 2003 and a copy has been provided. Project Agreement has been signed on 7 <sup>th</sup> March 2003 and a signed copy has been provided. SIGNED: Søren Jellessø COMPANY REPRESENTATIVE <span style="float:right">DATE: January 2005</span>					
ACCEPTANCE OF CORRECTIVE ACTION/COMMENTS: <b>Major CAR 1 has been closed out.</b>					
SIGNED		DATE: 22 <sup>nd</sup> February 2005			
AUDITOR		Irma Lubrecht			
		Category 1		Category 2	
		RECOMMENDED	CLOSE	RECOMMENDED	CLOSE
		NOTIFICATION	OUT	NOTIFICATION	OUT Next
ASSESSMENT		1 Months	2 Months	3 Months	Surveillance visit
SURVEILLANCE/ RENEWAL		2 Weeks	1 Month	3 Month	
					Category 3 Prior to first verification

**CORRECTIVE ACTION REQUEST (CAR)  
MAJOR CAR**

PROJECT DEVELOPER: <b>Grue &amp; Hornstrup Consulting Engineers</b>						
JOB NO: 6852-DK		SIT NO: -		CAR NO: <b>2 OF 4</b>		
AUDITOR: Irma Lubrecht		ASSESSMENT DATE: 1 <sup>st</sup> - 8 <sup>th</sup> October 2002				
COMPANY REPRESENTATIVE: Søren Jellesø						
AREA: <del>PARTICIPATION REQUIREMENTS / STAKEHOLDER CONSULTATION / ADDITIONALITY / LEAKAGE / EIA / TRANSBOUNDARY EFFECTS / MONITORING / OTHER (describe)</del>						
DETAILS OF NON-CONFORMANCE: <b>No spreadsheet with raw data has been provided therefore no recalculations could be carried out.</b>						
SIGNED		CAR		SIGNED		
COMPANY		PROPOSED		AUDITOR: Irma Lubrecht		
REPRESENTATIVE:		CLOSE OUT DATE: <b>ASAP</b>				
CORRECTIVE ACTION TAKEN TO PREVENT RECURRENCE: Spreadsheet has been provided.						
SIGNED: Søren Jellesø						
COMPANY REPRESENTATIVE				DATE: 5 <sup>th</sup> January 2005		
ACCEPTANCE OF CORRECTIVE ACTION/COMMENTS: <b>Major CAR 2 has been closed out.</b>						
SIGNED						
AUDITOR		Irma Lubrecht		DATE: 22 <sup>nd</sup> February 2005		
		Category 1		Category 2		Category 3
		RECOMMENDED	CLOSE	RECOMMENDED	CLOSE	Prior to first
		NOTIFICATION	OUT	NOTIFICATION	OUT Next	verification
ASSESSMENT		1 Months	2 Months	3 Months	Surveillance	
SURVEILLANCE/		2 Weeks	1 Month	3 Month	ce visit	
RENEWAL						





**CORRECTIVE ACTION REQUEST (CAR)  
MINOR**

PROJECT DEVELOPER: <b>Grue &amp; Hornstrup Consulting Engineers</b>						
JOB NO: 6853-DK		SIT NO: -		CAR NO: <b>4 OF 4</b>		
AUDITOR: Irma Lubrecht		ASSESSMENT DATE: 1 <sup>st</sup> - 8 <sup>th</sup> October 2002				
COMPANY REPRESENTATIVE: Søren Jellesø						
AREA: <del>PARTICIPATION REQUIREMENTS / STAKEHOLDER CONSULTATION / ADDITIONALITY / LEAKAGE / EIA / TRANSBOUNDARY EFFECTS / MONITORING / OTHER (describe)</del>						
DETAILS OF NON-CONFORMANCE: <b>No QA/QC procedures specified in the monitoring plan</b>						
SIGNED		CAR		SIGNED		
COMPANY		PROPOSED		AUDITOR: Irma Lubrecht		
REPRESENTATIVE:		CLOSE OUT DATE: <b>ASAP</b>				
CORRECTIVE ACTION TAKEN TO PREVENT RECURRENCE:						
SIGNED: Søren Jellesø						
COMPANY REPRESENTATIVE				DATE:		
ACCEPTANCE OF CORRECTIVE ACTION/COMMENTS:						
The new version of the Monitoring Plan discusses monitoring procedures. However, to highlight this issue to the verifier, Minor CAR 4 has been downgraded to Observation 1.						
SIGNED						
AUDITOR		Irma Lubrecht		DATE: 22 <sup>nd</sup> February 2005		
		Category 1		Category 2		Category 3
		RECOMMENDED	CLOSE	RECOMMENDED	CLOSE	Prior to first
		NOTIFICATION	OUT	NOTIFICATION	OUT Next	verification
ASSESSMENT		1 Months	2 Months	3 Months	Surveillance	
SURVEILLANCE/		2 Weeks	1 Month	3 Month	ce visit	
RENEWAL						