***JCF***

March 21, 2008

Secretary to the CDM Executive Board

Re: Request for Review

Dear Sirs,

Below please find the response to the request for review for the CDM project (35 MW Bagasse Based Cogeneration Project By Mumias Sugar Company Limited (MSCL)) with the registration number 1404. We are at your disposal for any further information you may need.

Yours sincerely,

Hiroshi Ogihara
Carbon Finance Department
Japan Carbon Finance Ltd.,

## Response to the CDM Executive Board

**Issue 1:**

Further clarification is required on how the DOE has validated the Kenyan grid emission factor.

**Response:**

We understand that the Validator should make comments on this issue. TUV SUD will answer this comments later.

**Issue 2:**

Further explanation is required on how the incremental quantity of bagasse, $BF_{PJ,k,y}$ has been calculated.

**Response:**

Mumias Sugar Company Limited crushed 2443298.62 tonnes of cane in 2005/2006 and was expected to crush similar quantities in 2006/2007 based on the quantities crushed so far and the projections for the remaining months of the year when the PDD was prepared.

Muimias Sugar Company Limited weighs all the incoming sugar cane using an electronic weigh bridge that is connected to the computerised data processing system. The cane measurement is used to calculate processing yields and to pay cane farmers.

The process water and steam is also measured using an electronic flow meter which feeds the process control and data collection computerised module. The total amount of water and steam into the process is therefore determined.

On the output side, the amount of the mixed juice coming from the diffuser is also measured by a flow metre connected to the computerised process control system. Therefore the amount of mixed juice is measured and known.

The amount of bagasse generated is calculated from the cane equation:

**Cane + (Water+Steam) = Mixed Juice + Bagasse.**

Based on the above equation and previous test runs, the company has established over the years that the average bagasse yield is about 37% of the total cane crushed by weight. The yield data which is regularly monitored and reported, as this forms a basis for compensating cane farmers, confirms this fact.

Of the total cane crushed, the existing data shows that on average over a 3 year period (2003 to 2006) 2357893 of cane was crushed, and the total bagasse production was tonnes 892638 (37%). (see Table 1 below). The same data shows that for each tonne of sugarcane crushed, 0.27 tonnes of bagasse is used to produce process energy (steam and electricity). This has been established though test runs by weighing the surplus bagasse which was damped in the plantations and the transporters had to be paid based on weight and distance transported. Further during the test runs, data exists to confirm the amount of bagasse burnt in the boilers based on the efficiency, Net caloric Value of the bagasse, the boiler efficiencies and steam generation.

Therefore, using this 3 year average data the surplus bagasse available for damping before the project implementation was 251780 tonnes per year which is approximately 125 890 t dry biomass (at 50% moisture content).

**Table 1: SUGARCANE AND BAGASSE PRODUCTION AND UTILISATION TRENDS (TONNES) FOR THE LAST 3 YEARS**

| Year | Sugarcane Crushed | Wet Bagasse Produced | Wet Bagasse Utilised | Wet Bagasse Dumped |
|---|---|---|---|---|
| 2003/4 | 2290427 | 857994 | 602039 | 255955 |
| 2004/5 | 2339954 | 881695 | 626640 | 255055 |
| 2005/6 | 2443299 | 938227 | 693898 | 244329 |
| **Total** | **7073680** | **2677916** | **1922577** | **755339** |
| **Average 3 yr** | 2357893 | 892638 | 640859 | 251780 |

The yield data and the data in Table 1 above was obtained from Mumias Sugar Company Ltd offices. However, most of it is also available from the Kenya Sugar Board Website; http://www.kenyasugar.co.ke/statistics.html

**Issue 3:**

Further clarification is required on how the quantity of bagasse is measured according to ACM0006 v4.

**Response:**

Direct bagasse measurement is difficult because it is necessary for Mumias to make major modification of the bagasse conveyor system entirely and it will bring Mumias additional investment.

As we mentioned in Issue 2, we are confident on the reliability and certainty of this equation because Mumias

has a lot of experience this method so far.

**Cane + (Water+Steam) = Mixed Juice + Bagasse.**

All the parameters in this equation, except bagasse, are measured and monitored on a regular basis. The amount of bagasse is therefore calculated and this was the basis of the monitoring plan provided in the PDD as below. Furthermore, the reliability and certainty of this equation can be crosschecked with quantity of electricity at the same time.

| | |
|---|---|
| Data / Parameter: | $\Sigma$ BF $_{k,y}$ |
| Data unit: | tonnes of dry matter |
| Description: | Quantity of biomass residue type *k* (bagasse) combusted in the project plant during the year *y* |
| Source of data to be used: | On-site Calculation |
| Measurement procedures (if any): | Based on periodic test runs and existing production data, it has been established that the wet bagasse (approximately 50% moisture) yield is about 37% of the total weight of cane crushed. The amount of wet bagasse generated is therefore calculated from the amount sugarcane crushed. The actual moisture content of the bagasse generated is determined by laboratory analysis of the bagasse. The amount of dry bagasse is calculated by adjusting for the moisture content. The quantity burned shall be crosschecked with quantity of electricity. |
| Monitoring frequency | Continuously, prepare an annual energy balance |
| QA/QC procedures to be applied: | Cross-check the calculations with an annual energy balance that is based on purchased quantities and stock changes. |
| Any comment: | 100% of the data will be monitored |