



PointCarbon™

**CDM Due Diligence
Idete reforestation project in Tanzania**

**Prepared for the Ministry of Finance, Norway
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Disclaimer

This report has been produced exclusively for the use of the Norwegian Ministry of Finance in connection with the Green Resources Idete plantation project and should not be relied on by other parties/entities to inform a potential investment decision in this or any other project owned or operated by Green Resources Ltd.

All Green Resources documents (including reports, budgets, business plans, presentations etc.) given to the due diligence team are assumed to be copies of official company documentation that conform to the originals.

The following report is a risk assessment for the Idete project only and not an assessment of the company Green Resources Limited or any of its subsidiaries. All aspects of the assessment such as the financial and legal due diligence only cover the Idete project activities as requested by the Clean Development Mechanism (CDM).

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Addendum to Final Draft

Point Carbon AS and Perspectives GmbH completed this report on the basis of on-site interviews, direct observations and various official documentation made available by Green Resources Ltd. before and at the time of writing in October/November 2008. Wherever possible, information gathered on-site was cross-referenced with secondary sources.

Comments and suggested corrections for the due diligence report were submitted by Green Resources in December 2009 and were duly examined by Point Carbon and Perspectives. It was found that none of the comments or suggested corrections contradicted information made available to the authors during the site visit and at the time of writing. Neither Point Carbon AS nor Perspectives GmbH are in a position to make further checks on the veracity of this new information and therefore the report has not been altered since completion in November 2008.

Point Carbon AS and Perspectives GmbH recognise that since publication of this report, Green Resources Limited have completed a full CDM project design document (PDD), which contains new information pertaining to a number of the issues and risks raised here.

Point Carbon AS and Perspectives GmbH again thank the staff of Green Resources Ltd. for their openness and cooperation during and subsequent to the site visit to the Idete plantation.

Executive Summary

The Ministry of Finance, Norway is interested in buying CERs from the Idete reforestation project of Green Resources Ltd. in Tanzania, Africa which aims for CDM (Clean Development Mechanism) registration. The project area currently consisting of 7330 ha of grassland will be transferred into a high value timber plantation with the purpose of commercial wood production in compliance with the FSC (Forest Stewardship Council) and CCBA (Climate, Community and Biodiversity Alliance) standards.

The objective of this study is to assess the risk of this reforestation project under the CDM. Successful CDM registration, subsequent CER generation and sale of CERs would generate an additional revenue stream for this project needed to make it financially attractive. At the request of the Ministry of Finance the environmental and social aspects of the project were assessed in more detail than mandatory for CDM project registration.

The analysis of risks for the Idete reforestation project activity as currently set up shows risks in many areas that are key for successful CDM registration. Many of these issues can be addressed by improving project design. However, some may pose significant threats to the project's success if not mitigated immediately. They are listed below:

- unconfirmed additionality due to inconsistent financial information
- unconfirmed early CDM consideration due to unclear start date of project activity
- potential gap in methodology applicability due to unclear degradation state of soil
- incomplete monitoring plan
- missing host country forest threshold definitions
- title deeds for leased land have not yet been issued and carbon rights are unclear
- with regard to community investment there are significant discrepancies between budgeted investments and actual investments realized on site

Because of these threats the project is overall rated as "high risk" and the issues listed need to be resolved before Green Resources submits the required documents for validation.

1. Aim of the study

The Idete project activity – developed by the company Green Resources Ltd (in the following “Green Resources”) is located in south-eastern Tanzania and involves the reforestation of 7330 ha grassland to create a high value timber plantation using Eucalyptus and Pine species. The project itself is advanced in implementation, having started first plantings in 2006. Until today, 1072 ha have already been planted. The main purpose of this reforestation project is commercial wood production in compliance with the Forest Stewardship Council (FSC). The establishment of plantations as a renewable source of wood supply is expected to result in twofold benefits: (i) generation of carbon stocks and greenhouse gas (GHG) removals by sinks and (ii), reduction of threats to natural forests. Therefore, the project offers potential to be developed as a CDM project and generate temporary or long-term CERs (Certified Emission Reductions). The Ministry of Finance of Norway (in the following “Ministry of Finance”) has assigned Point Carbon AS (in the following “Point Carbon”) and Perspectives GmbH (in the following “Perspectives”) to conduct a thorough CDM due diligence assessment in advance of making a final investment decision.

The main goal of this study is to assess the risks of this reforestation project under the rules of the CDM in order to enable the Ministry of Finance to assess the likelihood of receiving tCERs/ICERs if a forward purchase agreement is concluded. The due diligence report therefore evaluates; (i) the likelihood of the CDM registration of the Idete reforestation project and; (ii) the risks of actually receiving tCERs/ICERs from the project.

A second goal of the study is to examine the degree to which the project will bring positive, long term benefits to the company employees, local communities and surrounding habitats. The Ministry of Finance puts a high priority on ensuring that its CDM investments contribute to the sustainable development of the host country.

2. Due diligence basis

The scope of the following due diligence assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of CDM Afforestation /Reforestation (AR) project activities, the scope is set by:

- The Kyoto Protocol, in particular § 12
- Decision 2/CMP1 and Decision 3/CMP.1 (Marrakech Accords)

- Further COP/MOP decisions with reference to the CDM
- Decisions by the Executive Board (EB) published under <http://cdm.unfccc.int>
- Specific guidance by the EB published under <http://cdm.unfccc.int>
- The selected approved CDM baseline methodology AR-AM0005, version 3

Additional documentation considered:

- Project Information Notes documentation (PIN) of the Idete project dated 28th March 2008 as provided by Green Resources
- Information and documentation gathered at the site visit in Tanzania in August 2008 (documentation list Annex) and as provided by Green Resources
- Relevant literature on forestry activities and existing afforestation/reforestation (AR) projects in the host country
- Publicly available information including websites

Green Resources has openly shared all relevant studies, budgets and other information with the due diligence team and made substantial efforts to ensure staff members at all levels (from manager to casual worker) were available for interview during the site visit in Tanzania. The due diligence team greatly appreciate the openness and cooperation of Green Resources management in facilitating their work.

All CDM documentation as received from Green Resources was based on version 1 of the selected CDM baseline methodology AR-AM0005. However, since concluding the site visit the selected baseline methodology has been revised twice, and the respective mandatory PDD-template has been changed significantly. As all of these changes have an immediate effect on the Idete project activity, the following report is assessed based on these new regulations, i.e. version 3 of AR-AM0005 and the new tools and guidelines. Where the outcome of the risk assessment is different in light of these changes, this is pointed out specifically.

The report is structured as follows: Chapter 3 explains the CDM project cycle and introduces the potential credits to be issued by a forestry project, giving background information on key issues to be considered. Chapter 4 to 7 describes the risks of the Idete project activity for CDM registration including registration risks, implementation risks, operation risks, and quantification risks. Chapter 8 addresses the social and environmental impacts of the project, chapter 9 the level of corruption of the host country and chapter 10 the political stability. Chapter 11 concludes.

Chapters 1-7, 8.4 and 11 were assessed and written by Perspectives, chapters 8 – 10 by Point Carbon.

3. CDM background information

The Clean Development Mechanism (CDM) defined in Article 12 of the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC) allows governments or private entities in industrialized countries to implement emission reduction projects in developing countries and receive credits in the form of Certified Emission Reductions (CERs), which they may count against their national reduction targets.

The main purposes of the CDM are to:

- assist developing countries in achieving sustainable development and in contributing to the ultimate objective of the Convention,
- assist industrialized countries in achieving compliance with their quantified greenhouse gases emission limitation and reduction commitments under the Article 3 of the Kyoto Protocol.

Forestry activities, limited to afforestation and reforestation (AR), are eligible for the CDM, but they do not generate the standard type of CERs (for a detailed explanation see below). They may include afforestation or reforestation of degraded land, conversion of agricultural land to agro-forestry systems, and commercial plantations, among others. However, only land that was not covered by forest before or on December 31st, 1999 is eligible for AR projects. Reforestation projects have to provide evidence that the project land was not covered by forest on 31 December 1989 while afforestation projects need to show this for at least 50 years. Demonstration of compliance with the definition of afforestation and reforestation depends on the host country's national definition of forests under the CDM.

3.1. AR Credits

The AR-credits differ from the normal CDM credits by the fact that AR-credits have to take into account the possibility that carbon contained in the biomass of trees is at a continuous risk of being emitted into the atmosphere. Consequently they are only valid for a certain time span. The regulations of the CDM define the credits from forestry projects as short-term credits (tCERs: temporary Certified Emission Reductions) and long-term credits (ICERs: long-term Certified Emission Reductions) with different durations of validity. Both tCERs and ICERs are of temporary nature and have to be replaced upon expiry. Project participants can choose a crediting period of either 20 years which may be renewed at least twice, or 30 years with no renewal.

- Short-term credits (tCERs) are valid for one commitment period¹ of five years, which means that credits for existing carbon stocks are re-issued after each verification event. If the carbon stock or part of it has been lost in the meantime, the next verification will simply yield less tCERs than before. Liability is not an issue with this system since only existing stocks are given credits. This makes it easier to react to fluctuations in biomass (e.g. due to thinning). Short-term credits cannot be banked and have to be used in the commitment period subsequent to the one among which they were issued. At expiry, a short-term credit has to be replaced by other Kyoto units such as an Assigned Amount Unit (AAU), a permanent CER, an Emission Reduction Unit (ERU), a removal unit (RMU) or by another short-term (t-CER) credit. Note, it cannot be replaced by a long-term (ICERs) credit from the same project, only from another project.
- Conversely, long-term (ICERs) credits are valid until the end of the project's crediting period². An important feature of ICERs is that they cause liability. They have to be substituted in the case of loss, i.e. when in a verification a lower amount of biomass is found than has been measured or credited in the last verification. Activities like thinning which decrease the biomass temporarily have to be taken into account when calculating the amount of ICERs. Abiotic influences such as fire, storm or pest attacks mean a difficult calculable risk in this case. At expiry, the ICER has to be replaced by an AAU, permanent CER, ERU, or a RMU. It is not possible to replace an ICER by a tCER or another ICER of the same project, only from another project.

3.2. The CDM project cycle

Any potential AR CDM project needs to be registered and approved by the CDM Executive Board (CDM EB), the core international decision making body, before a generation of tCERs/ICERs is possible. The necessary formal process is complex; the major steps of the CDM project cycle are summarized in the figure 1.

In the following, each step of the project cycle is explained and complemented by information about its typical duration.

¹ The Kyoto commitment period is the period in which Annex B countries that have ratified the Kyoto Protocol have committed to reduce their collective emissions of greenhouse gases by an average of 5.2% between 2008 and 2012 compared to the 1990 emission level.

² Period during which a project can generate tCERs/ICERs

3.3. The PDD development (~3 months)

The project's compliance with the CDM rules is assessed on the basis of the PDD (Project Design Document), which is the key document in the CDM cycle and serves as background for the eventual registration by the CDM EB. A PDD consists of numerous chapters that should elucidate different aspects of the project. It needs to be completed on the basis of a methodology for setting a baseline and monitoring emissions removals that has been approved by the CDM EB.

The central elements of a PDD are:

- the additionality test,
- the description of the baseline and the estimation of GHG mitigation potential,
- the monitoring plan, and
- the presentation of the public stakeholder consultation

One of the major risks regarding the CDM eligibility of a project idea is the so-called "additionality". Projects that are economically highly attractive and whose realization is not facing significant barriers, are not supposed to be registered as CDM projects. Consequently, a transparent and comprehensive description of the project's economic feasibility with and without revenues through CER sales is needed.

The estimation of GHG mitigation potential is based on analysis of project and baseline scenario (= project alternative) carbon flows. A baseline for an AR project is calculated by determining the changes in carbon stocks in above-and below ground biomass, litter, soils, and deadwood (depending on the chosen methodology) that would have reasonably occurred without the project. To define a baseline, project proponents must use an approved methodology or propose a new one to which the Executive Board must agree.

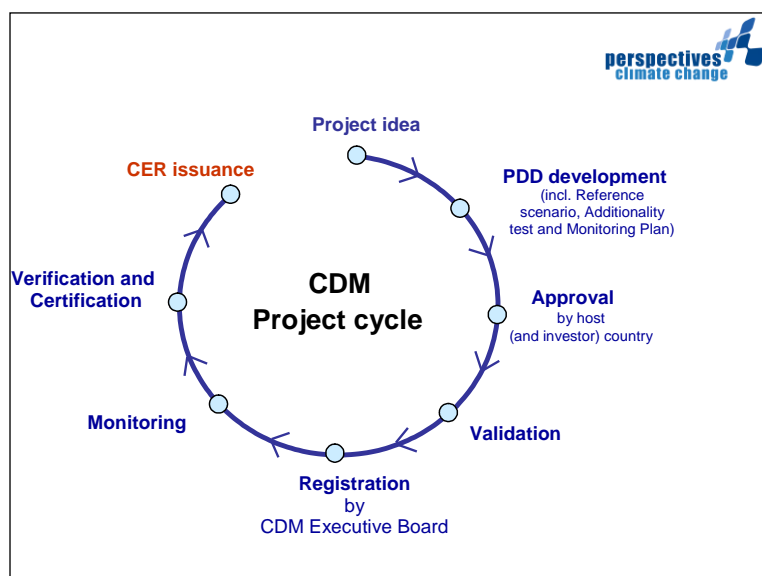


Fig. 1. CDM project cycle

Another important part of the PDD is the Monitoring Plan. On the basis of the methodology and taking into consideration the on-site circumstances of the project, this plan determines which parameters of the project should be measured with what methodology and in which time intervals. Furthermore, the Monitoring Plan makes a statement on where and for how long the generated data have to be filed. A carefully worked out monitoring plan is an essential instrument for the subsequent efficient and successful development of the monitoring reports (please see below) – and therefore vital for the successful generation of tCERs/ICERs.

The PDD development also requires presentation of the outcome of the local stakeholder consultation to the project. It means that during the PDD development, the local public has to be given the opportunity to express possible doubts concerning the CDM project (e.g. local authorities, households, and local NGOs). This should happen by inviting the local stakeholders to a presentation on the CDM and the planned CDM project activity with subsequent discussion of the project. The outcome of the local stakeholder consultation has to be included in the PDD. Organizing the local stakeholder consultation and scheduling of invitations to participate at an early stage are indispensable in order not to delay the PDD development process.

3.4. Validation (~2 months)

Validation is an independent assessment of the project's compliance with all the CDM rules (e.g. additionality, local stakeholder consultation, etc) by so-called Designated Operational Entities (DOEs) (also known as a "validator"). Validation starts with the publication of the PDD on the website of the CDM EB which for AR projects lasts 45 days ("public stakeholder consultation"). A "desk review" of the elaborated PDD and an on-site audit of the AR project are also part of the validation process. The audit takes place after the public stakeholder consultation. During the audit, the statements in the PDD are screened according to their validity and their feasibility. Regarding AR CDM projects, special attention is directed to the issue of the non-permanence of emission removals by the project participants. If the validator determines that the requirements for a CDM project have been met then they recommend to the CDM EB that the project be registered.

3.5. Registration (8 weeks)

The project proposal is automatically registered if the CDM EB does not object to it within a period of 8 weeks. Until today, only one AR project has been registered.

3.6. Monitoring, verification and certification and CER-issuance

After project implementation, the necessary data for calculation of emission removals is continuously collected and filed according to the Monitoring Plan. If the issuance of tCERs/ICERs is requested, emission removals have to be verified and certified by a second DOE. Verification of an AR CDM project can only be done every five years. A further requirement for AR projects is that verifications should not systematically coincide with peaks in carbon stocks. In other words, verifications are not allowed to be carried out consistently just before harvestings reduce the standing carbon stock. The verification report is submitted to the EB and made publicly available. Based on the successful verification and certification the EB will then issue the corresponding amount of credits.

3.7. CER-Channeling: Support in CER sales

CERs can be sold in a forward contract or after issuance. The timing of sales has a strong impact on the price that can be achieved.

4. Registration risks

4.1. Methodology risk

The selected approved baseline and monitoring methodology “Afforestation and reforestation project activities implemented for industrial and/or commercial uses” (AR-AM0005 version 03) can be applied for the Idete reforestation project activity if all of the following applicability conditions are fulfilled:

- a) The project area is covered with grasslands with low soil carbon content (compared to the expected soil carbon content under the project activity) because of soil degradation, or because climato-edaphic conditions naturally lead to thin, infertile soils with low carbon content.
- b) Land cover within the project boundary is in steady state as grassland
- c) Natural regeneration is not expected to occur in the project area because of the absence of seed sources or because land use practices do not permit the establishment of tree vegetation carbon stocks in soil organic matter, litter and deadwood can be expected to decrease more or increase less in the absence of the project activity during the time frame that coincides with the crediting period of the project activity, relative to the baseline scenario. Lower soil carbon under grassland compared to plantations or secondary forests can be expected under tropical conditions, it cannot necessarily be expected under non-tropical conditions; evidence has to be provided that the

exclusion of soil organic carbon is conservative for the project case through, e.g. representative scientific literature.

- d) Flooding irrigation is not permitted
- e) Soil drainage and disturbance are insignificant, so that non CO₂-greenhouse gas emissions from these types of activities can be neglected
- f) The amount of nitrogen-fixing species (NFS) used in the AR CDM project activity is not significant, so that greenhouse gas emissions from denitrification can be neglected in the estimation of actual net greenhouse gas removals by sinks.

These conditions are fulfilled by the Idete project as follows:

- a) Partially fulfilled. The present vegetation in the project area (apart from the already afforested part) consists of savannah-like communities derived from sub-montane forest, dominated by grass with scattered shrubs and trees and riverine vegetation. The dominant grass species are fire adapted *Hyparrhenia* sp. The land cover in the project area is grassland, the riverine vegetation areas are set aside as protected areas.

At the time of publication, the soil analysis for the Idete project area was not yet available. According to the Idete EIA the soil types within the project area consist of a mixture of red and yellow clays with dark humid top soils, whose agricultural productivity rating is medium. This corresponds to the good observed growth rates of the already planted Eucalyptus and Pine species. The only publicly available soil map of Tanzania is from the Geological Survey Department in Dodoma and made in 1977. It classifies the soils of the Idete project region as a Rhodic Ferralsol (World Soil Classification of the FAO).

Ferralsols are characterized by the dominance of kaolinite clays and a residual accumulation of iron and aluminium oxides and hydroxides, a stable soil structure, a low silt/clay ratio and a very low content of weatherable minerals. They are deep to very deep and generally show yellowish or reddish colors. In summary, Ferralsols are poor soils chemically but have good physical characteristics: because of their high permeability and stable micro-structure they are less prone to erosion. Nevertheless the EIA reports that landslides in the project area are common in steep slopes and that some areas have been exposed to excessive annual fires and cultivation and are therefore exhausted in humus content and prone to erosion.

A final judgment of soil quality based on the existing data is not possible. The carbon content of the soil needs to be sampled and analyzed and the soil

degradation assessed properly according to the requirements³. Yet as Ferralsol soils are generally not known as infertile soils, this potentially represents a risk for the methodology's applicability.

- b) Probably fulfilled, the grassland with scattered trees and shrub has remained as it is since generations and is therefore assumed to remain in a steady state. Evidence thereof needs yet to be presented.
- c) Fulfilled, as natural regeneration is not expected to occur in the project area as the tall dense *Hyparrhenia* species prevent the only sparse available seeds from germination.
- d) Probably fulfilled, as plantation will not be irrigated. Seedlings are planted at the beginning of the rain season between December and Mai, leaving them enough time to growth and establish roots to access the soil water before the beginning of the dry season. However, flooding irrigation is applied in the nurseries located within the project area where the seedlings are raised until the plants are approximately 25 - 30cm tall and ready to be planted.
- e) Partially fulfilled. According to the site preparation and planting guidelines of the working manual the project area soils are prepared as follows: the plantation site is first cleared of unwanted vegetation by burning the whole area if it is covered by heavy grass which is the case for the whole project area. This procedure would cause much CO₂ emissions. At the site visit Green Resources showed the already planted areas and demonstrated that manual spot weeding is realized instead of clearing and burning the whole area. Consequently, the working manual needs adjustment and the site preparation to be checked carefully. Following, pitting (30x30x30 cm in size), planting, weeding (1 m in diameter around the planted tree), slashing and beating up of competitive grasses is carried out manually using hand tools. As all of these activities are performed manually on local plantings spots only, the soil is not expected to be disturbed significantly. However, the nurseries located within the project area cause some soil disturbance as nursery sites first are cleared of all trees and roots followed by a replacement of the top soil (~30 cm deep) of the seed beds by a fertilized soil mixture. Also, to protect the planted areas from the serious problem of fires, a large belt around the plantation areas is burned down. This causes a large amount of greenhouse gas emissions and represents a major problem (compare chapter 6.1).
- f) Fulfilled, as tree species to be planted in the project area are Eucalyptus and Pines species which both are not nitrogen fixing tree species.

³ EB 41, Annex 15: Tool for the identification of degraded or degrading lands for consideration in implementing CDM A/R project activities

4.2. Host country approval risk

Tanzania ratified the Kyoto Protocol on August 26, 2002 and also established a Designated National Authority (DNA) – a national institution overseeing CDM project approval. The DNA has developed a “Handbook for Clean Development Mechanism project activities in Tanzania” in 2006 and a “Clean Development Mechanism (CDM implementation guide”⁴. Both documents give important information about CDM project opportunities in Tanzania and procedures required from Project Idea Note (PIN) stage to issuance of CERs. The handbook is currently under revision, a 2007 version is available online⁵. According to the handbook, AR project activities have to be addressed first by the Ministry of Natural Resources and Tourism through the Forest and Beekeeping Division before the DNA can approve them. For all CDM projects an administrative fee of at least 2.5% of the estimated CERs is charged by the Tanzanian DNA for the technical and administrative reviews of both the PINs and PDDs⁶.

As of today (October 29, 2008), the DNA did not report any national forest threshold definitions to the EB⁷. At the visit of the DD-Team with the Tanzanian DNA in Dar Es Salaam on October 25, 2008, Mr. Richard S. Muyungi, the head of the Tanzanian DNA, told the DD-Team that the national forest definitions should be reported to the EB by the end of October 2008. As long as these national forest definitions are not reported to the EB, an AR project activity cannot be registered at the UNFCCC. Consequently, the Idete project could currently not be registered as a CDM project. Mr. Muyungi also told the DD-Team at the meeting that according to the Tanzanian CDM Investors Guide the government needs to be on the board of a company seeking for CDM project registration. This would mean a major intervention in the company ownership structure and may influence the amount of CERs the project company would receive if the project is implemented successfully. As the Tanzanian CDM investors guide is not publically available and until today was not provided to the DD-team by the Tanzanian DNA this issue urgently needs further exploration.

Conclusion: the host country approval risk is rated low without accounting for the government ownership issue. However, if the DNA does not report the threshold, this would result in complete project failure.

⁴ A handbook for Clean Development Mechanism (CDM) project activities in Tanzania. Permanent Secretary, Vice President’s Office, Dar Es Salaam
Clean Development Mechanism (CDM), a National Implementation Guide, Environmental Protection and Management Services, Dar Es Salaam.

⁵ Web address for both documents:

http://www.cdm.or.tz/index.php?option=com_docman&task=cat_view&gid=35&Itemid=50

⁶ According to 2007 handbook version

⁷ Modalities and procedures for afforestation and reforestation project activities under the CDM: paragraph 8 (a)–(c) of the Annex to Decision 5/CMP.11

4.3. Land eligibility for reforestation project activity

To demonstrate the land eligibility for a CDM reforestation project activity⁸, project participants have to demonstrate that at the moment of the project start date as well as on 31 December 1989 the land did not contain forest as defined in the forest threshold definitions of the host country. Project participants must provide proof in form of documentation that reliably discriminates between forest and non-forest land. In light of these requirements the following factors concerning the vegetation cover documentation may increase project risk:

- a) Tanzanian DNA has not yet defined the forest threshold values (required to distinguish forest and non-forest in current and historical environment)
- b) The satellite image provided at the site visit was dated 1990. Interpretation of 1990 satellite image patterns was based on 2007/2008 ground reference data, resulting in unreliable mapping of 1990 vegetation cover type (due to possible vegetation cover changes on reference site in 18 years between image and ground survey).
- c) No evidence for the land coverage at project start year was provided (project start year unclear; see chapter 4.4).
- d) Land eligibility has to be checked for each discrete parcel of land

Conclusion: the available information is considered insufficient for project approval. Documented proof is required to substantiate claim of absence of forests since 31 December 1989. Land eligibility according to AR-CDM requirements needs to be assessed again when the final forest threshold definitions are known.

4.4. Additionality

Starting date of the AR project activity

To register an AR project under the CDM, project participants have to provide evidence that its starting date was after 31 December 1999⁹. Also, they must indicate awareness of the CDM prior to the project activity start date¹⁰, and that the benefits of the CDM were a decisive factor in the decision to proceed with the project. This evidence shall be based on (preferably official, legal and/or other corporate) documentation that was available to third parties at, or prior to, the start of the project activity.

Green Resources documented the start date of the Idete project as 18th September 2003, representing the date of the allocation of the land from the 'Ministry of Land

⁸ EB 35, Annex 18: Procedures to demonstrate the eligibility of lands for afforestation and reforestation CDM project activities

⁹ A/R Methodological Tool: Tool for the Demonstration and Assessment of Additionality in A/R CDM Project Activities (Version 02).

¹⁰ EB 41, Annex 46: Guidance on the demonstration and assessment of prior consideration of the CDM

and Human Settlement Development Land Division to Escarpment Forest Company, a subsidiary which merged with Green Resources in 2001. This allocation represents a step in the process of acquiring a long term lease for land in Tanzania (compare chapter 8.1) but not the final approval and the issuance of the title deeds (which is currently underway). This starting date would generally qualify for CDM registration as it is after 31 December 1999.

At the site visit of the plantation the DD-team learned that trial plantations within the Idete project area were already established in 2002 which may be considered as first project activity. The project idea and first planning would thus have occurred even earlier. The actual planting started in 2006.

Concerning the early CDM consideration, no written evidence thereof for the Idete project was provided to the DD-team, in spite of repeated requests for clarification. Green Resources argued that it is a company strategy to realize all Green Resources projects as carbon projects. Under the CDM rules, this argument does not qualify as serious CDM consideration. Evidence has to be provided for each specific project.

Conclusion: the project start date is unclear due to the long duration of acquisition process and company name changes. The project start year should be consistent with first project activity and land acquisition timeline. The latter should be presented transparently and a sound argumentation should be provided why a certain step within the land acquisition process qualifies for project start year.

Evidence for serious CDM consideration was not provided for the Idete project. If such evidence cannot be presented, there is a high risk that the project will not be validated. The CDM EB has repeatedly stressed the importance of this issue and lately rejected many projects which could not transparently provide evidence for serious CDM consideration prior to project start date.

a) Investment analysis

A CDM reforestation project has to prove that it would not have happened anyway by applying the so called "Additionality tool"¹¹. Projects that are economically highly attractive and whose realization is not facing significant barriers, are not supposed to be registered as CDM projects. Green Resources applied the investment analysis, though it is not clear which financial approach (benchmark approach or investment comparison approach) they will choose to prove the additionality of the Idete project in the final PDD.

¹¹ EB 35, Annex 17: Tool for the Demonstration and Assessment of Additionality in A/R CDM Project Activities, Version 2

The IRR calculation was based on the “monthly management budget for the Idete plantation of the year 2008” document (in the following “budget sheet”), the “direct cost calculation based on all GRL plantation activities including of Idete, Uchindele, Mapanda and Masagati FP document” (in the following “GRL sheet”), and the “long-term budget for the years 2008-2040” document (in the following “IRR-sheet”).

The 2008 budget sheet – calculating the direct plantation cost in USD/ha- covers not only the plantation costs (subdivided into nursery, planting, and weeding costs) but also includes fire protection and security, road construction and maintenance, workshop/mechanical, forest station cost (including acquisition of 3 pickups, environmental, inventory mapping and research, training and representation, administration, community support, land rent and acquisition). In summary, the direct plantation cost also includes maintenance and capex. For each of the above categories salaries, material, and fuel cost are listed per month and summarized for the year 2008.

Analyzing this sheet, several inconsistencies were found, e.g.:

- Total yearly cost does not match with summarized cost for all months (Jan-Dec) for several categories. e.g. USD 64,166 instead of USD 39,166 for school community support
- Yearly cost is calculated per ha based on 1000 ha planting in 2008. Land rent however is included for all 11,500 ha.
- Intransparent costs items like “other cost” or “other external consultants and studies” and “material cost” for several categories already listed
- Full cost of EIA are calculated (USD 14,532) for each plantable year
- Fire equipment costs appear high compared to the actual situation on site
- Very high (and irreproducible) diesel cost for “workshop/mechanical” in addition to fuel consumption for nursery, planting, weeding, etc.
- Total of permanent staff in budget (39) higher than at site visit (18)

The total cost of the 2008 budget sheet (702 US\$/ha) was transferred to the IRR sheet and listed under the cost item “direct plantation cost/ha USD”. However, direct plantation costs did not match between the budget sheet (702 US\$/ha) and IRR-sheet (750 US \$/ha). Green Resources clarified that the 750 US\$ figure was taken from the GRL-sheet. They argue that the cost structure between Idete, Uchindele, Mapanda and Masagati plantations are fairly equal, thus making the average cost per ha (calculated from all four plantations) representative also for the cost of Idete. In addition, they explain the difference with missing cost items in the budget sheet like training, management, mapping, etc. However, as all of these items are specifically included in the budget sheet (see above) the cost difference still remains unclear.

Assessment of GRL-sheet is not possible as it is not transparent and cost items cannot be reproduced based on the information available.

The IRR-sheet shows several discrepancies, too, e.g.:

- Maintenance cost of 30 USD/ha (general supervision, fire protection, community relations, non-commercial thinning and pruning) are already covered in direct plantation costs: cost are double counted
- Plantation overhead cost is already covered in above direct plantation cost/ha, nevertheless Green Resources again adds a 35% overhead on plantation and maintenance: again double counting
- Direct plantation cost includes purchase of 3 vehicles. This number is subsequently used for both plantation durations from 2008-2015 and from 2028-2036. For each of these single years, new vehicles would be purchased.
- Direct plantation cost includes cost of Environmental Impact Assessment Report EIA (14,532 USD). This number is subsequently used for all years of plantation duration (see above; so each year a new EIA would be realized)
- Most of capex cost for the years 2008-2040 (forest station & infrastructure: USD 837,000, central nursery: USD 333,000, vehicles: USD 290,000, and planting equipment & heavy machinery: USD 769,000) is also already covered in the direct plantation cost. Again double counting
- Plantation area (8392 ha) in budget calculation does not match with plantable area as estimated by the GIS expert (7330 ha). This would result in cost differences of 796, 500 USD (based on 750 USD/ha GRL assumption).
- Revenues from thinning activity are missing although Green Resources communicated that this wood will be sold as energy wood.

Conclusion: the whole financial model is designed in an inconsistent manner. Due to various discrepancies and duplications the budget of the Idete project and the subsequent IRR calculation is considered incorrect. Based on the current financial documentation it is not possible to make a statement concerning the profitability of the project. Consequently, risk of additionality failure is rated to be very high.

b) Barrier analysis

Green Resources report high upfront financial obstacles: the project needs to raise upfront finance for securing land leases, seed capital, and technical capacity. They argue that no other private, commercial afforestation company exists in Tanzania which should be proof enough that the business of re-/ afforestation is not a “business as usual” scenario. Delayed return of investment and low rates of return over a long-time frame are usual for forestry projects: when comparing CDM A/R projects with other industries, rates of return are relatively low and occur over a long time frame. Projects that are designed to not only deliver carbon, but also deliver

environmental and socio-economic benefits as the stringent CDM, FSC and CCB standards require, are even less profitable by design and need even further support in the form of carbon finance.

Conclusion: Green Resources should provide evidence for the financial investment barrier (e.g. non-availability of loans).

4.5. Technical capacity of developer to develop required CDM documentation

The required CDM documentation consist of the Project Design Document (PDD), including project description, additionality assessment, baseline and sequestration calculations and the monitoring plan. The project developer has previously developed two AR projects on the voluntary market. Expectation is thus that the technical knowledge for project development is available. However, in order to reduce the risk of rejection, the following aspects need to be considered for the final documentation:

- Transparent and correct calculation of all indicators and figures is imperative (this is not yet the case in the PIN and currently available financial information).
- The requirements and processes of the chosen methodology must be followed exactly without modification (e.g. crediting period definition, monitoring requirements)

Conclusion: Some of the draft information available at this point does not yet fulfill the above requirements and therefore needs to be adapted (compare chapters 6.3). The methodological capacity of the project team can therefore not be fully determined. However, if documentation and calculation standards cannot be improved against current situation, there is a high risk of methodological failure.

5. Implementation risks

5.1. Financing risk

Costs for the Idete project have been quantified but need to be revised (compare chapter 4.4). The financing is in place, the Idete project is equity financed by the company stakeholders of the mother company Green Resources in Norway. The Idete forest management plan also mentions that the project has loans from some financial institutions, however, no details of these loans were given. According to the company annual report 2007 the company's liquidity was satisfactory in 2007, but shareholders have provided loans to the company when required. The board believes that this situation will continue. In 2007 the company generated a net profit of 22 million NOK. Financial risks such as exchange rate risks, interest rate risks, credit risks, liquidity risks and capital risk management risks are discussed in the

company annual report. The company is not hedging or insuring any financial risks. Concerning the Idete project the exchange rate risk marks a major factor because of the instability of the local currency. According to Green Resources the real effect of currency fluctuations is limited because wood is a global commodity driven by international market prices and traded in international currencies. The long term goal of Green Resources is that most of the wood produced in Green Resources' plantations will be exported.

Conclusion: the risk of financial failure is considered to be low as company stakeholders are financing the Idete project and the company's liquidity was satisfactory in 2007. Green Resources needs to clarify if additional loans are part of the project financing.

5.2. Technology risk

Green Resources is operating several plantations in Mozambique and Tanzania. As a forestry company they have the technical know-how from seedling establishment in the nursery to sapling planting in the plantation and forest plantation operation. Operating in Tanzania they are also know local conditions on-site. Forest carbon project use the same standard techniques as normal forestry projects: GIS and GPS are used to measure and survey boundaries and to analyze spatial information, permanent plot data collection and analyzing is used to monitor changes as in every forest inventory assessment. The site visit confirmed the technical experience and know-how of Green Resources in the forestry sector. Although the selected species – both Pine and Eucalyptus – are exotic tree species in Tanzania they have shown good grow results. Both species have already been planted in Tanzania for several years by the government. In addition, the results on the Idete plantation site from the trial plantations planted in 2002 show good results.

Conclusion: the technological risk assessed is rated low.

5.3. Management risk

The Managing Director of Green Resources (Tanzania) is new and was formerly manager of the government owned plantations near Sao Hill¹². He brings long experience in Tanzanian forest plantation management to Green Resources. As far as is known, he does not have significant experience managing a commercial enterprise. The second level of management (compare chapter 8.5) including plantation manager, personnel manager, GIS manager, and other mid level plantation manager have a sound education and work experience.

¹² During the site visit it was claimed by one source that the former manager had passed away. Green Resources have subsequently denied this claim stating that he is now a business development manager. Since the due diligence team see no reason to doubt Green Resources in this matter, we have corrected the report accordingly.

The risk of management failure mainly depends on company processes such as communication flow, knowledge exchange, interdisciplinary problem approach as well as the leading quality of the respective managers. Such an in-depth assessment however would go beyond the scope of this due diligence assessment.

Conclusion: The risk based on education and experience of the managing level is rated low.

6. Operational risks

6.1. Risk of natural disturbances

Fire represents the most serious natural threat to the Idete forest plantation. Human and natural induced fires are common in the region, especially during the dry season. Also, Eucalyptus trees boost forest fires due to their highly flammable oils. To protect their plantation Green Resources has realized a sound fire management plan¹³ with effective measures already in place. The already planted area of 1072 ha is protected by fire belts (15- 60m wide, depending on location and wind situation). Such fire belts can coincide with roads or rivers but often are areas where the grass is burned down to create a barrier between the plantation area and the surrounding grassland. The same is planned for all of the plantation areas to follow. Although this makes perfectly sense from a fire mitigation point of view this procedure nevertheless emits greenhouse gases. The non-CO₂ emissions from biomass burning (fires) resulting from incomplete combustion of the biomass have to be calculated according to the baseline methodology. The CO₂ emissions from biomass burning do not have to be accounted for since changes in the loss of carbon stock in the grassland in the living biomass are already included in the calculated part of the emissions from biomass loss. Also, the preparation of these fire belts may represent a risk for the plantation if the fire is getting out of control. Protection measures include permanently occupied fire watch towers (one already built, more are planned), a trained fire crew which is on duty day and night, fire patrols and community involvement in fire reporting and fighting. Necessary firefighting equipment is in place, but notwithstanding the question remains if a really huge fire can be extinguished with regard to the tank capacity of the currently only available fire truck. However, Green Resources argues that the focus is on fire prevention and early detection. In summary, it is evident that Green Resources takes the fire danger very seriously.

Wind breaks and insect attacks often represent a major risk for monoculture plantation consisting of trees of the same age. In the Idete project area winds are strong with main wind direction East to West. Lately, a minor incident of wind break

¹³ Fire protection plan for Idete forest project, fourth edition, January 2008

has been reported on the governmental plantations in the Sao Hill region. Eucalyptus generally are not prone to wind breaks, they are even planted as wind barriers in some plantations. However, the occurrence of wind breaks also strongly depends on the soil quality: trees on shallow degraded soils are more prone to wind breaks than trees rooting in deep soils. Consequently special precaution should be taken on locations with degraded soils or much erosion. So far, Green Resources has not addressed the wind risk issue.

On the site visit it was remarkable to see how the landscape was dominated by the mounds of the termites. Although no reports about termite attacking plantations have been reported for the project region this issue should not be underestimated. Both Pine and Eucalyptus species are not indigenous to Tanzania. While Eucalyptus has a dense wood structure acting as a barrier to insect intrusion - some single Eucalyptus species like Eucalyptus camaldulensis are even termite-resistant (so far not part of the plantation) - Pine species have no such natural defense mechanism and are generally highly sensitive to insect and fungal attacks. However, both trees are sensitive in the seedling state and when freshly planted (sapling state). So far only few insect and fungal symptoms have been observed in Pines in the other Green Resources plantations but no serious outbreak of pest and diseases. Green Resources is constantly monitoring the health of the trees by so called patrolmen and intends to put much effort into prevention (good silviculture practices, e.g. by preventing competition of trees for nutrient and water)¹⁴. Chemical will be used in accordance to FSC requirements.

Conclusion: The two tree species are differently sensitive to natural hazard impacts. When planted in monoculture, even aged structures, the sensitivity increases. While Pine species are generally more prone to fungal and insect attacks, Eucalyptus species in return boost forest fires. The focus of Green Resources lays in the prevention of such outbreaks which is certainly the right approach. Nevertheless, fire still represents a major risk.

6.2. Risk of intentional conversion to non-forest land

If further land eligibility documentations (see chapter 4.3) would show that the project land was forested after 31 December 1989 and converted to non-forest land before commencement of an AR CDM project activity then the project developer would need to provide transparent information that demonstrates that the land was not intentionally converted to non-forest land for the purpose of implementing an A/R CDM project activity.

Conclusion: This risk is considered to be low.

¹⁴ Work instructions and guidelines for plantation operations, Green Resources, April 2008

6.3. Risk of monitoring failure

The risk of monitoring failure is assessed based on the monitoring plan, the expertise of the monitoring professionals, and the data availability. The current draft monitoring plan is for the calculation and assessment of the forest plantation activity only as required by the methodology. Environmental and social aspects are not part of this plan and are therefore not assessed. They could easily be added to the monitoring plan thus enhancing the project quality considerably. In the following, each of these categories is assessed and rated separately.

- *Monitoring plan:* The draft version of the monitoring plan as provided by Green Resources is structured into the required sections and lists the variables to be monitored for each section separately. Most of the sections are incomplete; several variables which need to be monitored as required by the methodology are missing. Some variables also need rewording as the names have to be consistent with the names as listed in the methodology. Additionally, some variables can be removed due to changes of methodology version. All mistakes are listed in the Annex. The current draft version of the monitoring plan represents a high risk for monitoring failure and would not be accepted for project registration. However, this risk level is based on the currently available draft version. With respective corrections in the final version this risk can be reduced significantly.
- *Expertise of the professionals:* The failure risk due to the expertise of the monitoring professionals is rated low. Based on their education and experience from other forest plantations all the professionals responsible for implementation and control of the monitoring plan (e.g. GIS, forest inventory, etc.) are judged to be competent.
- *Data availability:* at the time of the site visit, data from field surveys for baseline assessment were not yet available. General GIS data for the project area such as project boundaries and already planted area were already in place. In general, all field monitoring variables can be measured with known standard techniques which are not considered to be difficult. GIS map data such as land cover maps and satellite pictures were obtainable. Therefore the failure risk is reduced to the management process of the data measurement, collection and storage as well as the training of the people involved. With competent people this risk can be rated low.

6.4. Permanence

Although the project developer opted for temporary credits (tCERs) permanence is an issue. Once the forest is lost tCERs will not be issued anymore. For the Idete

project the highest risk is loss of forest due to fire (compare chapter 6.1). As respective fire mitigation measures are in place the risk can be reduced from high to medium.

7. Quantification risks

7.1. Baseline risk

The baseline risk is due to the possibility that changes in the baseline - for example because of natural succession - could invalidate "additionality" and therefore the "certificability" of the green house gases offsets deriving from a project. According to the selected methodology the baseline scenario is quantified ex ante at the beginning of the AR CDM project activity and will hold throughout the crediting period. As Green Resources has chosen 3x20 years for the crediting period, the first 20 years face a baseline risk of zero. After 20 years the baseline has to be newly quantified again with a fixed baseline for the next 20 years, and again for the last 20 years. The baseline risk for these 40 years cannot be rated as is will also depend on other potential CDM AR projects located closely to the Idete project activity.

7.2. Leakage risk

The selected baseline methodology requires to assess and account leakage from displacement of fuel wood collection outside the project boundary and displacement of grazing activities attributable to the AR CDM project activity. No indications on the presence of grazing on the project land have been encountered at the site visit. Fuel wood collection is also not an issue in these grasslands as the local community of the nearby villages collects fuel wood in the nearby forests. The PDD should take reference and document that both of these potential leakages are not an issue for the Idete forest project. If this is the case leakage risk is rated zero.

7.3. Project sequestration risk

Carbon sequestration highly depends on the grow rate of the selected species on the specific soils in the project area over time. Yield models are used to calculate these grow rates which should be adjusted to the local soil and climate conditions and build based on local grow data. The presented yield models looked good although some showed a quite high variation in grow rates. The average above ground carbon sequestration was reported to be 177.5 t/ha for *Pinus patula* and 136 t/ha for *Eucalyptus saligna*. This would result in 650,619 t carbon for Pine and 498,440 t carbon for Eucalyptus assuming a 50%:50% share for the 7330 plantable area. The carbon sequestration values seem rather high when compared with values from literature of 120 t/ha for Pine, respectively 80 t/ha for Eucalyptus. However, soil and climate conditions can increase growth rate and thus carbon storage considerably.

This topic needs further exploration. Below-ground carbon sequestration will be calculated using the root/shoot ratio approach. A final assessment of the sequestration risk based on the currently available data cannot be conclusively undertaken. However, it was obvious from the site visit that Green Resources is taking the calculations very seriously and is working accurately on this topic.

8. Social and environmental impacts

8.1. Current land tenure on the project area

Current land ownership structure of the Mafinga area

From an administrative perspective the Mafinga province consists of 6 urban townships, rural village owned land, Sao hill forest plantations, Green Resources plantations and tea plantations.

Summary of current land ownership rules

In May 2001 the 1999 Urban Land Act #4 and 1999 Village Land Act #5 entered into force, bringing with them drastic changes to the way that land ownership is managed. New international investment guidelines also came into force in 2001, administered by the Tanzania Investment Centre (TIC)

All land in Tanzania belongs to the state and can only be leased on a long or short term basis to private entities. The land leasing process is bottom up requiring approval from all government levels (village, district, regional, country).

Land can fall into one of four categories

- General land for private use
- Urban land for urban small holders
- Village land for village small holder farmers and hunters
- Reserve land

Anyone laying claim to a plot of land for private use must have a “Certificate of Occupancy” (COO), which is similar in nature and legal stature to title deeds. A COO normally lasts 99 years.

According to the Mafinga district land officer, village and district level approval for the land application was granted prior to 2001. The land officer also explained that regional level approval was granted in 2001 and documentation was seen showing that in September 2003 the Minister for Land and Human Settlement approved the lease request (country level). But it was not until May 2007 that the district council requested Presidential approval from the Ministry of Land to transfer the land from village land to general land.

There was no immediately available explanation as to why there was such a long delay in seeking Presidential approval. Only once approval has been obtained will GRL be issued with the Certificate of Occupancy. When asked why there was such a delay, the Mafinga Land officer replied that Presidential approval often takes time. He could not say precisely when approval will be granted.

Cost of land

According to the project's financial statement the cost of leasing the land is 500 Tsh/hectare, or 5,750,000 per annum. We asked the land officer to verify the cost per hectare incurred by Green Resources to lease the land. He did not have the figure to hand but explained that he would be able to check the amount once he returned to his office and send to us. However, we did never receive this figure.

Risk of renationalization

According to the district land officer, there are three legal reasons why the State could forcibly expropriate the Idete plantation site:

- 1) For the construction of buildings for the delivery of essential government services such as education and healthcare. The construction of a new school and/or clinics are typical examples, activities which do not require large areas of land and would have a minimal impact on the plantation activities.
- 2) Military training or the construction of military installations. Government reserves the right to forcibly expropriate general land for military purposes. The construction of a military base or airport and usage for military training are typical examples. Since there are large areas of unproductive "village land" nearby the project site and no plans for expansion of military activity in the area, it is highly unlikely the government would expropriate the land for this purpose.
- 3) Other public interest. The government could, theoretically take over plantation ownership and/or convert to another sort of productive activity in order to create jobs. In the current pro business political climate this is a highly unlikely scenario

In the event that the government does forcibly expropriate land, it is obliged under law to give "fair, full and prompt" compensation to the original leaseholders. If compensation is not delivered within 6 months, the original proprietors should receive interest payments on the compensation amount. No large scale acquisitions of private property have yet occurred so the law has not yet been tested. The mechanism for deciding adequate and appropriate compensation is also unclear, however, the valuation process will be undertaken by the government. It is likely that any disputes or appeals would be dealt with via Tanzanian courts, which are notoriously corrupt.

Conclusion: Green Resources needs to transparently document the approval process through all governmental levels and provide sound argumentation why the Certificate of Occupancy have not yet been issued. In addition, ownership of carbon rights needs to be verified and documented.

Since the Certificate of Occupancy has not yet been officially granted by President Kikwete, and there is no official timeline as to when this may occur, this presents an important project risk which could jeopardize validation and deny GRL legal ownership of the carbon rights (tCERs) of the project .

A second risk is that the government seeks to void the lease and nationalize the GRL plantation. This risk would have a high impact but has a very low likelihood of occurring.

8.2. Displacement of population caused by the project

According to the land planning officer and Green Resources staff there were “a few households” that used the project site for cattle grazing purposes but no permanent human dwellings on the Idete project site. This viewpoint was corroborated by the Idete village council, who concurred that there was no-one to their knowledge living permanently on the project site and that it was only used for small scale cattle grazing purposes by inhabitants of nearby hamlets.

However, according to the Idete EIA Report (2008) the picture is more unclear. The report stated that “GRL has followed legal procedures in acquiring the areas for tree plantation from the villages. However there are areas with properties belonging to individual villagers who were still grudging during the scoping exercise.”(p.55), Whether or not these were permanent human dwelling places, grain storage buildings or cattle pens is unclear. The report goes on to state that valuation of appropriate compensation “has been done”, and “compensation to the affected villagers has been done”(p. 56).

No description of the compensation amount or valuation process has been provided by Green Resources.

Conclusion: Since GRL provided no information on the process of identifying affected villagers for compensation, and the level of compensation we are unable to judge whether GRL acted fairly and in accordance with the law on compensation for displaced people/forced acquisition of property. Certainly no complaints were heard by villagers or officials that GRL had acted unfairly or illegally.

The EIA is very weak on this subject and it lacks in detail in a number of other areas, indicating a lack of capacity on the part of the consultant and poor judgment of GRL management in choosing the consultant.

8.3. Displacement of agricultural production (including grazing)

See above.

8.4. Species diversity and appropriateness for the site

The Idete forest plantation is planting exotic species such as Eucalyptus (mainly Eucalyptus saligna) and Pine species (mostly Pinus patula) in combination with establishment of trial of indigenous tree species and exotic hardwoods (approx. 5% of the plantable area). Both Eucalyptus and Pine species do occasionally produce natural regeneration in Tanzania. However, aggressive spreading beyond project boundaries is considered unlikely but should nevertheless be monitored. There is a trade-off between carbon removals achieved by exotic species versus biodiversity benefits of native species. Still, Green Resources is trying to account for this effect by setting aside 2830 ha for conservation areas and planting indigenous tree species. Single rare and endangered species were reported by the EIA and should also be protected and monitored. Although Eucalyptus and Pine are not indigenous species they show good grow result on the Idete project site. Due to their high nutrition and water demand, Eucalyptus species do likely have an impact on the soil system. Ground water level therefore needs to be monitored and soil samples analyzed regularly. Also, it is reported that Eucalyptus leaves prevent any other species from germination. Similar Pine needles increase acidity of topsoil also preventing many species from growing. This is not a major problem for the plantation but could potentially be one for the surrounding grassland and forests if these two species spread outside the plantation boundaries.

8.5. Treatment of staff

Background research on International and Tanzanian labor laws and forest plantation labor standards was conducted prior to the field visit. On site, interviews incorporating questions on Green Resources labor standards were conducted with the head of GR personnel, the Green Resources plantation manager, local and international NGO representatives, three permanent non-managerial Green Resources employees and two casual workers.

International and national labor standards

The International Labor Organization (ILO) conventions, ratified by 170 nation states, set out minimum labor standards for all employees of public and private organizations in countries that ratify the conventions. Additional national level Labor standards are

also common. In Tanzania companies that do not fulfill ILO conventions are therefore, by default, in breach of international and national laws.

A full list of ILO conventions can be found on the ILO website at <http://www.ilo.org/ilolex/english/convdisp1.htm>

Tanzania has ratified all eight ILO core labor conventions, those on freedom of association and the right to organize and collective bargaining; on the elimination of discrimination in respect of employment and occupation and on equal remuneration; on the elimination of forced or compulsory labor; and on abolition of child and forced labor.

Unfortunately the Tanzanian government does not strongly enforce those conventions leading to frequent violations of the human rights of workers in many companies and governmental organizations. The most common of these breaches is a ban by employers on the right to strike. A full list of conventions ratified by Tanzania can be found at:

<http://www.ilo.org/ilolex/english/newratframeE.htm>

As well as the ILO conventions, the Tanzanian government passed an Employment and Labor Relations Act in 2004. It mainly governs the relationships between trade unions and employers, providing for rapid resolution of industrial labor disputes.

Voluntary Labor Standards

In preparation for the site visit studied more specialized guidelines for labor standards in forestry and plantation work prior to the site visit. Though not obligatory, they contain guidelines for health and safety training and equipment, common labor problems and best practice in forestry management. Documents consulted were:

- ILO Guidelines for labor inspection in forestry
- And labor force sections of Climate Change, Community and Biodiversity Alliance (CCBA) Standard
- Forest Stewardship Council (FSC) Standard

Since Green Resources is aiming for certification under both the CCBA and FSC, labor standards should already be at or near these levels.

Labor management systems

Green Resources labor force is managed by a single personnel manager, who is responsible for contracting and distributing wages and salaries. Educated in Pakistan, but a Tanzanian national, the personnel manager has good knowledge of Tanzanian employment laws, including minimum wage, rules on child labor and the

right to organize. The personnel manager gave assurances that all employees were issued individual contracts and offered an example contract for inspection.

The personnel manager also said that Green Resources has an employee handbook, detailing the responsibilities, routines, working hours and Green Resources employment policies. At the time of meeting the personnel manager did not have a copy to hand.

General Profile of Green Resources Employees

The GRL company hierarchy is complex but in general there appear to be four levels of employee, with commensurate levels of pay.

- 1) International management personnel. Including national level manager and forest carbon manager. These members of staff report directly to the CEO and are responsible for creating and managing the commercial aspects of the Green Resources plantations.
- 2) Tanzanian management personnel. These include the plantation manager, personnel manager, GIS manager, community manager, other mid level plantation managers. Most are based at the Green Resources offices at Sao Hill, however some are based at the company's office in Dar es Salaam.
- 3) Permanent Plantation staff - Nursery staff, Fire-fighters. These employees are local Tanzanians from the Mafinga province with full time employment contracts. For the Idete project there are 14 permanent nursery staff and around 15 firefighters.
- 4) Casuals during planting season. The planting season lasts for three months, during which time large numbers of casual laborers are employed by Green Resources. They are paid per day at the statutory minimum wage for forest plantation workers. This was 2500 Tsh per day (about 2 US\$).

Compliance with ILO core conventions and Tanzanian labor laws:

029 Forced Labor 1930

There is no evidence, nor any suggestion that Green Resources is using forced labor at the Idete site or any other project site. This practice is banned under national labor laws.

087 Freedom of Association and Protection of the Right to Organize 1948

The government of Tanzania is nominally responsible for protection of the right to organize however enforcement of this convention tends to be weak at a national level. According to the Green Resources personnel manager, all staff are entirely free to organize and or/join various organizations. Most relevant here are the two trade unions active in the Mafinga region. One is a well known national industrial workers union TUICO, the other a union of forest workers, TPAWU. The head of personnel

explained that representatives from both unions are at the Sao Hill offices on a “near daily basis” and that relations between employees and company management are “very good”. He also stated that there has never been a strike, nor any threat of one.

Amongst permanent nursery staff, fire fighters and casuals there is low level of awareness of the presence of unions in the Sao Hill area since the Idete site is far from the union offices in the town of Mafinga. However there was no indication that the freedom to organize is being actively constrained or discouraged by Green Resources management.

098 Right to Organize and Collective Bargaining 1949

Again, two trade unions are actively involved in protecting workers’ rights and negotiating for better salaries and working conditions. The level of unionization among staff is strongest at the saw mill, however as noted above, permanent and casual staff working on the Idete site are not, to our knowledge, actively involved with trade unions.

100 Equal remuneration 1951

Although salaries vary widely between employment grades (manager, permanent, casual), there was no evidence or suggestion that different salaries were being paid for work of the same value. Casual workers, when questioned, all claimed to have the same daily salary and Green Resources budgets assume equal salaries for workers of the same type.

105 Abolition of Forced Labor 1957

There was no evidence or reason for suspicion that forced labor was being employed by Green Resources.

111 Discrimination (Employment and Occupation) 1958

There was no evidence found that Green Resources employees were being discriminated against on the basis of race, color, sex, religion, political opinion, national extraction or social origin. At the Sao Hill offices the head of Personnel asserted that there was an active policy of recruiting more women at management level.

Among casual workers during the 3 month planting season at Idete, around 50% are non-locals from surrounding regions. Many are from different tribes and ethnic backgrounds. These workers are offered free dormitory accommodation, washing and cleaning facilities and food. There was no evidence found to suggest that they were being discriminated against or otherwise persecuted by company management.

In 2007 a group of casual workers from Green Resources approached the district commissioner to complain that Green Resources did not provide transport from the project site back to their respective residences in the surrounding regions after termination of contracts. Green Resources is under no obligation to offer such a service as there are ample bus services on the main Mafinga road and the company already provides motorized transport to the road side from the project site. The complaint was duly rejected by the District Commissioner.

138 Minimum Age Convention 1973

There was no evidence found or suggestion made that Green Resources employs child labor as part of its operations at Sao Hill or Idete.

Under the ILO convention strenuous or dangerous work should not be undertaken by children at all. This would apply to plantation activities, including planting, weeding, felling of trees or fire fighting. It would not apply to nursery or office work. In this case the minimum age in Tanzania is 14. Secondary school is not compulsory in Tanzania and must be paid for. Instead some local women have sought employment at the nursery and are likely at or just above the 14 year threshold. This fact was confirmed by other women at the Idete village.

182 Elimination of the Worst Forms of Child Labor 1999

See above.

Wages and wage payment

Both casuals and non-managerial permanent staff members are paid at Tanzanian minimum wage for forestry workers. Until Q2 2008 this amount stood at 2500 Tsh/day. It has since risen to 3000Tsh/day. Current work contracts have not been altered yet to reflect this change, however the head of personnel gave assurances that this would be done without delay.

All non-managerial permanent and casual workers interviewed in the field confirmed that during the last planting season they were paid according to the agreed amount of 2500 Tsh/day. One of the casual workers replied that in the previous planting season of Jan-March 2008, he had had wages withheld from him by his plantation supervisor. On one occasion he claims he had worked 12 days but was only paid for five.

When asked if this wage was adequate for feeding their families during the plantation season, two of the four non-managerial workers replied that it was inadequate and that there were sometimes problems with availability of food due to the fact that they could not attend to their farms. When asked if there was any alternative salaried labor

in the local area, none of the four other workers could think of alternative employment other than Green Resources.

Another complaint voiced by casual workers was that in the past Green Resources did not always pay its salaries on time. Casual workers from Idete complained that payments were delayed by as much as a few months sometimes. This concern was clearly voiced in the Idete stakeholder survey conducted in July 2007, where “46.5% claimed the company did not pay wages on time”. After making enquiries with company management about this issue, it was claimed that the 2007 political crisis in Kenya was preventing them from transferring money for salaries from Green Resources accounts in Nairobi. Both management and workers stated that late payment of wages was no longer a problem.

Conclusion: It is important to interpret the viewpoints of casual workers in light of the fact that they are only employed for three months of every year. The salary from GRL provides only supplemental income over the year and should not be expected to cover all of the employee families' needs. However 2500 or 3000 Tsh/day is a low wage and, while in line with national minimum wage laws, will not provide for much more than basic needs.

The practice of pooling funds for corporate expenditures of any kind in relatively unstable African countries is a high risk, low reward strategy that reflects a certain lack of financial prudence. GRL have given assurances that alternative arrangements are now in place, which will avoid a repeat of this incident. No evidence or description of these arrangements has yet been furnished by Green Resources.

That casual workers sometimes have to walk long distances to the project site and are prevented from tending their own farms means that they also incur a high opportunity cost for choosing to work for Green Resources. Green Resources could easily help Idete casual workers avoid this expense by providing transport to the plantation site.

Health and safety

Green Resources management personnel made assurance that workers at the nursery had been given health and safety training and that a more comprehensive health and safety training plan was being put in place. Nursery workers, when questioned, could not recall the details of their health and safety training, implying either the training is poorly communicated or not given in a systematic fashion.

Green Resources managerial staff explained that first aid kits were available at the site office, at the nursery and on site nearby workers during the three month planting

season. Visual inspections of the nursery and site office confirmed that there were adequate first aid kits available in these places.

The most serious health and safety risks on a forest plantation are those related to the felling of trees. At the Idete site trees are still in the vegetative (growth) stage and so felling will not begin for at least another 5 years when the plantation will be thinned. Some pruning and thinning has already begun and GRL management gave assurances that they were working on a comprehensive H&S training plan in this area.

Conclusion: Green Resources must act quickly to develop a comprehensive H&S training programme for pruners and fellers, and ensure they supply them with appropriate safety equipment. ILO guidelines and the FSC standard demand that these are in place and Green Resources has pledged to meet these standards.

Individual contracts

ILO guidelines as well as Tanzanian labor laws demand that all personnel, whether employed on a permanent or casual basis, should sign an individual employment contract containing the contract period, wage type of work expected and terms for dismissal. The head of personnel at Green Resources assured us that this was the case and an example contract was inspected and appeared to be in order. However two out of the three non-managerial casual workers that we questioned could not recall ever having signed a paper contract. Many of the casual workers are illiterate and may have applied a thumb print instead of a signature. This should be investigated further.

Conclusion: The treatment and conditions of workers at the Idete site seems broadly in line with Tanzanian employment law as well as the core conventions of the ILO. Some minor breaches of other ILO conventions and guidelines appear have occurred in respect of contracting, prompt payment of correct wages and health and safety awareness. Green Resources management is not fully aware of these oversights, which indicates a certain lack of operational control. It should now act swiftly to address these issues in the interests of its employees.

8.6. Stakeholder involvement in project

Past stakeholder consultation, prior to project construction

The stakeholder consultation programme comprises one of three programs of work with the local community. The other two are (i) the community support programme and (ii) community impact monitoring.

For any large scale construction project, stakeholders should be fully informed in advance of project implementation and their concerns fully addressed by the responsible company. Ideally, stakeholders should give their full consent to the project before construction begins.

Within Idete it is unclear to what extent villagers were consulted prior to the project start date of 2003. Approval to use the land was granted by the village council in 2002 but the format and minutes of this meeting were not seen by the due diligence team. Neither the Sept 2008 Community Developments presentation, the Idete EIA or Stakeholder Report of 2007 mention any village consultations prior to 2004. This is after the official project start date of 2003.

Format, regularity, minutes

Since completing the first stakeholder consultation process in December 2004, Green Resources has developed a strong theoretical framework for conducting ongoing stakeholder meetings. The process, as described in Green Resources' standard operating procedures are as follows (source: Green Resources presentation on community developments, Sept 2008):

- 1) Stakeholder identification i.e. Primary (Direct) and Secondary (indirect) stakeholders.
- 2) Keep updates the stakeholder about the company's achievement and failures (after every three month in a year).
- 3) Detailed socio-economic survey for the stakeholders after every three years.
- 4) Keep records

It is Green Resources' policy to hold key stakeholder meetings every year in July with full consultations once every three years and quarterly updates on Green Resources' progress towards its village development goals. The parties allow Green Resources an opportunity to reward its staff and updates on the project's progress are given.

For projects already fully underway, Green Resources have informed us that these stakeholder activities are working well. For the Idete project it remains unclear whether the company has conducted any recent stakeholder meetings, aside from the 2008 plantation party. The Green Resources community development officer claims that the Idete consultation plan is still being developed.

Community assistance

The community assistance programme is the second key element in the stakeholder engagement strategy. Social assistance, healthcare and education budgets from local government are low and inadequate meaning that Green Resources has an opportunity to use its financial resources to make a real difference to the lives of its

employees and their families. But it is important that the company spends money on the issues of greatest concern to villagers and in a sustainable manner.

Non-plantation issues of concern to the villages were identified during the 2004 and 2007 stakeholder consultations and an assistance plan developed internally to meet some of these concerns. As part of the due diligence process, we questioned the village council about the main development challenges they face and these appeared to be broadly in line with those areas identified for assistance by Green Resources. Two issues of concern that were not being addressed by Green Resources were the lack of clean drinking water and the absence of transportation to the plantation site.

According to Green Resources sources, the company has, to date, provided 36,300,000 Tsh in equipment to Idete in 2008. However, according to the GRL budget, the total amount allocated to this task is 102,000,000 Tsh (64,000 EURO). Members of Green Resources staff and the Idete village council showed the due diligence team the following Green Resources community investments:

- A new school building, supposedly a kindergarten, with new furniture.
- A new bridge over a small river, which is a feeder road to the village (and may be used for Green Resources timber transportation)
- A one-off consignment of medical equipment to the village dispensary
- Some low grade building materials for the construction of a new village council meeting house
- Pine trees surrounding the school area

Additional items as identified by Green Resources but not visible, expressly mentioned or pointed out during the site visit include:

- Provision of 120,000 seedlings to villagers
- 2 primary school classrooms
- A second new bridge
- Water infrastructure

There is a wide disparity in budgeted and spent funds for Idete community development implies there is a serious bottle neck in disbursing community assistance funds.

Furthermore, the amount Green Resources claims to have spent on certain activities seems to be much higher or lower than market prices or reasonable cost estimates. For example the amount allocated for the purchase of 25 bags of cement is 3,000,000 Tsh, meaning a price per bag of 120,000 Tsh. 2008 market prices for a 50 kg bag cement are a maximum of 25,000 Tsh. The problem of auditing community

expenditure is compounded by the fact that the budget lines give very little detail on what equipment or services have actually been purchased.

Finally, the figures for community expenditure are all large whole numbers, which implies that some or all of the expenditures have been estimated.

Conclusion: Green Resources is not a public service provider and any donation of goods or services is undertaken voluntarily. At the same time, it has an interest in maintaining good relations with the village since it provides much of the permanent and temporary labor force for the Idete plantation. Members of the Idete village council voted overwhelmingly in favor of the investments that Green Resources had made and thought the company was bringing benefits to the community. The company must ensure that it continues to help meet the needs of the Idete village and manage expectations about what it is and is not capable of providing.

There are some serious causes for concern related to community programme management and finances. Green Resources must ensure that it develops a clear, accurate and transparent community assistance budget and comes good on money it appears to have budgeted on a company level to help the Idete village. It was also not made clear which activities had already been undertaken by GR and there seems to be a disconnect between what is visible on the ground and what has been budgeted.

This lack of managerial oversight and financial discipline indicates that GR is not giving sufficient attention to its responsibilities towards the Idete community. The situation is not irreconcilable. It should also be recognized that the project is still at an early stage. Nevertheless, this issue should be addressed as a matter of priority.

9. Level of corruption

Tanzania ranks 102nd in the Transparency International corruption perception index, with a score of 3 out of 10. This is a low ranking and implies that “corruption is seen as serious challenge by country experts and businessmen”. In comparison with other sub-Saharan African countries Tanzanian ranks 16 out of 47; significantly higher than average.

Tackling corruption is highly dependent on the will of political leaders and the actions they take to fight it. In Tanzania there has been an independent anti-corruption bureau since 1966. It underwent radical changes in structure, mandate and name in 2001 and 2004 and is now known as the Prevention of Corruption Bureau (PCB).

President Kikwete has been actively speaking out against corruption since he took power in 2003.

One of the biggest corruption scandals in recent history took place in February 2008 when a Parliamentary select committee presented a report investigating a controversial contract between the government and Richmond Development Company to generate power. The allegations made in the report led to the resignation of the Prime Minister and cabinet ministers, including the then director of the PCB. As a result, President Kikwete felt impelled to dissolve the entire cabinet and appoint a new prime minister. The move was welcomed by Parliament and the general public.

By taking tough action against high level corruption Kikwete has sent a strong signal to businesses and officials. However that a scandal of this magnitude can occur and at the highest levels of government indicates the extent to which corruption is often part of everyday business life in Tanzania.

In the World Bank Group's 2004 Investment Climate Assessment it was found that there exist wide geographical differences in the perception of corruption. The Iringa and Mbeya provinces, where the Idete project is located was ranked second highest with 64% reporting it as a "major" or "serious" problem.

However the prevalence of corruption on a national or regional level does not imply that Green Resources are or have been involved in corrupt practices.

Conclusion: It is exceptionally difficult for third parties to uncover evidence of corruption with such a short time on site (2 days) and such action risks damaging the trust and level of communication between the due diligence team and Green Resources. We cannot therefore make any categorical statements about this issue except to say that Green Resources management seem well aware of reputational risks of engaging in corrupt business practices and that no evidence was found or suggestion made that Green Resources had engaged in such activities.

10. Political stability

Tanzania has a relatively stable government and has made major reforms under President Kikwete to make the country more "pro-business". These reforms include new land and company ownership laws and financial support for the Tanzanian Investment Centre, aimed at attracting foreign businesses. Since coming into power

President Kikwete has suffered a decline in popularity, due in part to corruption in his cabinet and his failure to resolve long running political and ethnic tensions.

The risk of political crisis leading to the possible renationalization or forced expropriation of private companies is very low. The main political divisions in Tanzania are between the ruling CCM party, which is predominately Muslim, and the Christian opposition. Tensions between the Revolutionary Government of Zanzibar and the CCM dominated government in Dodoma are also running high, although the chances of violent conflict are minimal.

Doing business in Tanzania has been made much easier since the implementation of certain reforms. According the World Bank doing business survey, Tanzania ranks 127th out of 181 countries and 14th out of 46 sub Saharan countries. Among these, it ranks top for “enforcement of contracts” and towards the bottom for “issuance of construction permits”. Tanzania’s position in the main index has slipped by 3 since 2007 due mainly to improvements in other countries in starting businesses.

Tanzanian taxation levels are roughly in line with neighboring countries, as is the ease of setting up a business and obtaining the relevant licenses to operate. Employment laws strike a good balance between allowing the employer flexibility and the rights of workers. There is a good legal framework in place for protecting the interests of investors versus that of claimants. However, in spite of a good legal framework, the court system is notoriously inefficient and corrupt (Bertelsmann 2008 Tanzania Country Report¹⁵).

Conclusion: Tanzania is a well established democracy and the current government is actively encouraging private foreign direct investments. The risk of forced appropriation of privately held land, property or funds is thus low.

As is often the case in Africa, there is a wide disparity between the theoretical and actual ease of doing business. In the case of Green Resources, long delays in the issuance of title deeds for the land and obtaining DNA approval are examples of unforeseen and unsanctioned bureaucratic obstacles that are a common feature of doing business in Africa.

Green Resources may also encounter serious difficulties if it is required to bring a case to court or defend itself again litigation. There is a low risk of this occurring but the consequences of taking or being subjected to legal action could be very serious.

¹⁵ Bertelsmann Stiftung, BTI 2008 — Tanzania Country Report. Gütersloh: Bertelsmann Stiftung, 2007

11. Conclusions

From the above assessment it is evident that the Idete reforestation project features several risks which could seriously compromise CDM project registration. However, many of these risks are not untypical for CDM afforestation/reforestation projects. Most of these risks can actually be addressed and mitigated with accurate preparation and transparent documentation. This applies for the investment test and the monitoring plan. One critical issue that has not yet been adequately addressed is early consideration of the CDM. This has not been proven conclusively and leads to high registration risk. In addition, external risks such as title deed issuance and national forest threshold definitions need to be approached with highest priority because they can lead to substantial delays in project registration.

Based on the current Idete forest project documentation available until today the overall risk for project registration failure under the CDM is rated high.

The assessment of the environmental and social aspects of the Idete project – realized in more detail than mandatory for CDM project registration – resulted in the following ratings:

- Low risk for environmental aspects as of today. However, several environmental variables (e.g. ground water level) need to be monitored accurately in order to take timely measures to prevent any potential environmental risk in the future.
- Medium risk for social aspects. Green Resources has a sound employment strategy that appears to meet all relevant regulations and ILO conventions ratified by the Tanzanian government. On the operations side, more work needs to be done in terms of ensuring comprehensive health and safety training and updating and managing contracts for casual workers. Green Resources has an active and positive relationship with the Idete community. However it appeared that to that strategic plans for community engagement are not yet fully implement and that budgetary oversight is weak. In order to maintain a positive relationship with the community and to ensure that the Green Resources makes a substantial, sustainable contribution to poverty reduction in Idete, these issues must be addressed as a matter of priority.

Annex

List of documentations provided to the DD-team by Green Resources:

- Project Information Note (PIN) of Idete project, 28th March 2008
- Forest management plan for Idete Forest Project, Second Edition 2008
- Environmental Impact Assessment (EIA) on proposed Mafinga and Idete Forest Projects in Mufindi District, Iringa Region, Tanzania, Revised Report, January 2008
- Work instructions and guidelines for plantation operations Green Resources Ltd, April 2008
- Draft version of the Monitoring Plan, 11 September 2008
- Green Resources Annual report 2007
- Tanzania stumpage fee 071205.xls
- Budget Idete 2008 080130.xls
- IRR Idete LT Budget081014.xls
- The Forest Regulation published 071123.pdf
- Presentation to new due diligence.ppt
- Costs of Community projects at Idete.xls
- start date_allocation of land.pdf
- change_from_escarpment to grl.pdf
- Comments from stakeholders corrected 23.8.2007.doc
- Project Boundary.pdf
- Map1_Landuse-cover.pdf
- Map2_Government Forest Reserves.pdf
- Map3_Land Eligibility.pdf

Monitoring discrepancies by sector:

- *Monitoring of the project boundary:* Only one variable is listed in the tables. All the described procedures should be added as variables in the table to be able to monitor them.
- *Monitoring of the forest establishment:* Information on the number of species planted, deviation in the implementation in relation to the management or silvicultural plan, planted areas affected by natural and anthropogenic disturbances, and seedlings planted by species as part of gap planting are missing and need to be added as data variables to the already listed variables in the respective table. These parameters need to be monitored only during the early stage of the forest establishment covering the 3-5 year period of the planting activity.

- *Monitoring of the forest management activities:* Damage recording during harvesting/ thinning/pruning activities, biomass burning practices (for fire breaks) and quantity of fossil fuels used in the forest management and operations during each year of the project need to be added.
- *The stratification process and the sampling framework:* Information is only addressed partially respectively would be addressed in the PDD as ex-post stratification has not yet been carried out respectively is underway. Sample size, sample intensity, and amount of samples need to be added in the monitoring information. The sample size should be estimated according to the methodology requirements, the number of samples need to be calculated applying the correct tool¹⁶ as specified in the CDM-AR-PDD guide¹⁷ and not the Winrock Plot tool as mentioned in the draft monitoring plan.
- *Monitoring of the baseline net GHG removals by sinks:* Both tables should be removed as the monitoring of baseline net removals is not required by the selected methodology as correctly stated in the monitoring plan.
- *Monitoring of the actual net GHG removals by sinks:* Data to be collected and archived for actual net GHG removals by sinks: sub-stratum ID if any, accuracy, tree species, age of plantation, number of trees, mean DBH, etc. need to be added.

Data to be collected and archived in order to monitor the GHG emissions by the sources: Wording of some variables is incorrect, needs to be adjusted. Some variables are missing (e.g. emission from fossil fuel use within project boundary, and several variables concerning biomass burning). Some variables have to be removed due to methodology version change. The topic emissions due to biomass burning has to be incorporated into the project. Although the planting area is not cleared by burning, the planted areas are affected by biomass burning to the fire barriers (between 15-60 m wide) created around the planted areas. As this represents a considerable amount of GHG emissions this needs to be accounted for. As the methodology is not completely clear as were to address this issue it nevertheless needs to be included as this would represent a major risk for project registration.

- *Leakage:* table needs to be updated according to new methodology version. If leakage from fuel wood is considered to be insignificant it has to be addressed by using the Tool for testing significance of GHG emissions in A/R CDM project activities. Prevention activities need to be addressed and explained in the PDD.
- *Quality control (QC) and quality assurance:* The current quality control and quality approach covers uncertainty assessment and procedures to reduce

¹⁶ EB 31, Annex 15: Calculation of the number of sample plots for measurements within A/R CDM project activities

¹⁷ EB 42, Annex 12: Guidelines for completing CDM-AR PDD and CDM_AR-NM

uncertainties for data measurement and data entry but not for data analyzing and data storage. These are highly important topics and should be included according to the GPG LULUCF¹⁸.

- *Name of person(s)/entity(ies) applying the monitoring plan:* Information if person/entity is also a project participants listed in Annex 1 of the monitoring plan needs to be added

¹⁸ Good Practice Guidance for Land Use, Land-Use Change and Forestry, 2003