TECHNICAL REPORT

PROTOTYPE CARBON FUND

DETERMINATION OF THE ROMANIA AFFORESTATION OF DEGRADED AGRICULTURAL LAND PROJECT

FINAL REPORT NO. 2002 - 1

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GFA terra systems

TÜV SÜDDEUTSCHLAND

TECHNICAL REPORT

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Approved by: Gerald Kapp	Organisational unit: GFA Terra Systems
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Summary:

The World Bank's Prototype Carbon Fund (PCF) has commissioned GFA Terra Systems, in co-operation with TÜV-Süddeutschland to perform a determination (validation) of the Romania Afforestation of Degraded Agricultural Land Project. The results presented in this report are based on the existing and emerging requirements for validation under the CDM in the Kyoto Protocol and the "Guidelines for the implementation of Article 6 of the Kyoto Protocol" stipulated in the Marrakesh Accords.

The validation is based on a desk review of the project documents, interviews of key persons and stakeholders and a visit to selected sites in Romania (20.-24.5.02). The overall project is well designed and likely to yield positive ecological, social and economical outputs.

In the Draft Report, eight Corrective Action Requests (CAR) and one Clarification Request (CR) were formulated. These requests were consequently resolved in a discussion process and the answers of the PCF and the project developers are quoted in the conclusion chapter and Appendix. The preceding Conditional Final Report was still conditional to any public comments that were received by June 28, 2002. These comments and the correspondent answers by PCF and project developers are taken into account in the Final Report.

GFA Terra Systems and TÜV Süddeutschland conclude that the project fulfils all the requirements and is therefore recommended for UNFCCC registration.

Report No.: 2002 - 1	Subject Group: Climate Change
Report title: Romania Afforestation of Degraded Agricultural Land Project	
Work carried out by: Gerald Kapp, Victor Platon, Michael Dutschke, Bernhard Schlamadinger. *Quality control*: Bernhard Grimm	
Work verified by: Werner Betzenbichler	

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Indexing terms

Climate Change

Kyoto Protocol

Joint Implementation (JI)

Abbreviations

AAUs	Assigned Amount Units
BS	Baseline Study
C	Carbon
CAI	Current annual increment (m^3/ha/year)
CAR	Corrective Action Request
CDM	Clean Development Mechanism
COP	Conference of the Parties
CP	Commitment Period
CR	Clarification Request
DR	Document Review
ERPA	Emission Reduction Purchase Agreement
ERs	Emission Reductions (t CO_2-equivalent)
ERUs	Emission Reduction Units (t CO_2-equivalent)
EST	Environmentally sound technology
FIRR	Financial Internal Rate of Return
GHG	Greenhouse gas(es)
HCA	Host Country Agreement
I	Interview
IBRD	International Bank for Reconstruction and Development
JI	Joint Implementation
KP	Kyoto Protocol
Leg.	Legislation
LoA	Letter of Approval
LoE	Letter of Endorsement
M&M	Measurement and Monitoring
MP	Monitoring Protocol
MVP	Monitoring and verification protocol
MWEP	Ministry of Water and Environmental Protection
N/A	not applicable
NFA	National Forest Administration
NPV	Net Present Value
OK	acceptable
PCF	Prototype Carbon Fund
PCN	Project Concept Note
PDD	Project Design Document
PIN	Project Idea Note
QA/QC	Quality assurance and quality control
SOP	Standard Operating Procedures
TFEAR	Technical, Financial and Environmental Assessment Report
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention for Climate Change

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1 CONCLUSIVE SUMMARY

The World Bank's Prototype Carbon Fund has commissioned GFA Terra Systems / TÜV Süddeutschland to validate the Afforestation of Degraded Agricultural Land Project in Romania. The results presented in this report are based on the existing and emerging requirements for validation under the CDM in the Kyoto Protocol and the "Guidelines for the implementation of Article 6 of the Kyoto Protocol" stipulated in the Marrakesh Accords.
The validation is based on a desk review of the project documents, interviews of key persons and stakeholders and a visit to selected sites in Romania (20.-24.5.02). The overall project is well designed and likely to yield positive ecological, social and economical outputs.
In the Draft Report, eight Corrective Action Requests (CAR) and one Clarification Request (CR) were formulated. These requests were consequently resolved in a discussion process and the answers of the PCF and the project developers are quoted in the conclusion chapter and Appendix.
The preceding Conditional Final Report was still conditional to any public comments that were received by June 28, 2002. These comments and the correspondent answers by PCF and the project developers are taken into account in the Final Report.
GFA Terra Systems and TÜV Süddeutschland conclude that the project fulfils all the requirements and is therefore recommended for UNFCCC registration.

2 INTRODUCTION

The World Bank's Prototype Carbon Fund (PCF) has commissioned GFA Terra Systems in partnership with TÜV Süddeutschland to "determine" the *Romania Afforestation of Degraded Agricultural Land Project*.. Determination under JI is the equivalent term of validation under CDM, and although validation in not yet a condition for JI projects under Art. 6 of KP, it is a forward looking strategy of the PCF to use and further develop this practice. The results presented in this report are oriented at the existing and emerging requirements for validation under the CDM in the Kyoto Protocol and the "Guidelines for the implementation of Article 6 of the Kyoto Protocol" stipulated in the Marrakesh Accords.

The validation team involved the following personnel:

Gerald Kapp (GFA)	Team leader, technical and forest economic analyses
Victor Platon (GFA)	Environmental and socio-economic impact assessments
Michael Dutschke (GFA)	JI-rules and carbon credits
Bernhard Schlamadinger (GFA)	Carbon accounting checks
Bernhard Grimm (TÜV)	Quality control of validation protocol and report
Werner Betzenbichler (TÜV)	Quality control of validation protocol and report

Two team members (Kapp, Platon) have visited the project developers and two of the 7 project areas, Dolj county and Braila county in the period May 20-24.

2.1 Objective

The objective of determination – which is the equivalent, under JI, to validation under the CDM - is to get an independent third party assessment of the *Romania Afforestation of Degraded Agricultural Land Project* design in particular the project Baseline Study, the Monitoring Plan and the Emission Reductions Projection, and their compliance with relevant UNFCCC, Host Country and PCF criteria. In particular the validator should check if the project meets the emerging JI requirements and provide a determination report and opinion. With the validation the determination requirements of Art. 6 of the Kyoto Protocol (KP) are satisfied.

2.2 Scope of Determination

The scope of determination is to assess the components generating the GHG reductions by reviewing the project design. Determination of the Project is a prerequisite for the Project's registration as a JI project and for the generation of ERs. Therefore, determination of the Project Design, Baseline Study and Monitoring Plan is a critical step in the PCF project cycle. The validation (determination) process follows the recommendations of the PCF Preliminary Validation Manual and is not meant to be a consulting service for the PCF, but an independent third party activity, aiming to give an objective evaluation of the project against KP requirements (Art. 6), UNFCCC rules and associated interpretations, e.g. The Marrakesh Accords *Guidelines for the implementation of Article 6 of the Kyoto Protocol*. The validation team's conclusions are based on a review of the project documents quoted under References (chapter 6) and a 5 day visit to the project developers and selected project sites (Dolj, Braila), focusing on the identification of significant shortcomings and risks for ER generation and project development. However, the burden of proof in the determination process ultimately rests with the PCF and other project participants.
The generic and specific tasks are specified in the ToR for the validator.

2.3 Project Description

Romania is an Annex I Party to the UNFCCC and ratified the KP on March 19, 2001. The "*Romania Afforestation of Degraded Agricultural Land Project*" was endorsed by the Ministry of Water and Environmental Protection on October 26, 2001.
The project plans to afforest a net area of 6,728 ha of degraded agricultural lands in 7 counties of the southwest and southeast Romanian plain and to rebuild natural forest ecosystems on the Danube floodplain. Apart from 1,700 hectares on the small Island of Braila, which belong to the National Forest Administration (NFA) and are currently being planted, all lands was under the stewardship of the State Domain Agency (SDA) and has been transferred to the NFA by a Governmental Decision promulgated in April 2002 (Gov. Decision 357/15.04.2002). Most of the area will be ploughed before planting with either naturalized or natural tree species (*Robinia pseudoacacia, Quercus cerris, Populus nigra, Populus alba, Salix alba*, and other broadleaf tree species in small portions). The baseline scenario is grazing of animals on low quality pastures, with very little afforestation taking place, according to statistical evidence and a low financial return on such investment.

According to the rotation length of the main species, Robinia, the project is planned for 30 years. The Oaks will be harvested after 100 years. Poplars and willows will not be cut, because of their nature protection function. The emissions and sinks of GHG are confined to CO_2. An amount of 1,019,047 ERs will be generated and sold to PCF (and other buyers) over a 15 year period, from 2002-2017. As under JI early crediting is not stipulated and up to date, ERUs are only defined for the first CP, it is accorded in the Host Country Agreement that the host country "*shall issue and transfer the equivalent of ERUs generated by the each Project to the ...PCF Participants .... after the beginning of the year 2008*" or to "*… issue and transfer the equivalent amount of AAUs to the ...PCF Participants*".
The project contributes to sustainable development of the country through

- the protection of degraded soils and adjacent agricultural crops against wind deflation and water erosion,
- the reestablishment of natural forest ecosystems on Danube islands effected by illegal grazing,
- the provision of employment opportunities in forestry, and
- the production of timber.

The total project cost of US$ 10.1 million will be provided by the National Forest Administration (NFA). For this afforestation, NFA will use money from the "*Forest Regeneration and Conservation Fund*", that is mainly financed through a 20% levy on timber sales – a realistic scenario according to the financial check provided in the BS. PCF will purchase at least 80% of the generated ERs. From the estimated purchase value of US$ 3.67 million, the PCF project preparation costs (a maximum of US$100.000) and the PCF costs for initial verification, annual supervision, verification and certification will be deduced.
The project is scheduled to start in fall 2002. The establishment of the plantations will be completed within 4 years.

3 METHODOLOGY

3.1 Review of documents, project visit and model check

The validation / determination audit started with a thorough review of the project design documents and the project background documents provided by PCF (see References). The written information was checked against the evolving requirements for JI projects, as stipulated in the KP, COP6,COP6bis, COP7 and other guidelines, like UNFCCC Secretariat Project Cycle for CDM, PCF's preliminary Validation Manual, Ministry of Economic Affairs of the Netherlands Operational Guidelines for JI-projects, Vine, et al. Guidelines for Climate Change Mitigation Forestry Projects (see References).
A **validation protocol** (VP) , based on PCF's preliminary validation manual, has been adapted as part of this determination (see Appendix).
The VP and further questions were used during a visit in the period May 20-24, 2002 to the project developers and ministries in Bucharest and to the following described sites foreseen for afforestation. The site selection criteria focused on the importance of the areas and perceived risks of implementation: **Braila** (2248 ha) is the biggest afforestation area and had reported problems with illegal grazing. In some documents it was not clear if only native species are to be planted and if the trees were going to be harvested in 60 years time. **Dolj** (2100 ha) is the second largest

afforestation area. Here, the situation of abandoned agricultural lands, erosion and the ploughing for site preparation were checked. The foresters in charge, colleagues from the agricultural administration and the Environmental Protection Inspectorate were interviewed (see the complete list in the References, chapter 6).
The claimed carbon credits, based on the use of the model CO2Fix were counterchecked by entering the basic data from the yield tables into another carbon accounting model – **GORCAM**.

3.2 Reporting of Clarifications and Corrective Action Requests

In the report conclusions, two types of amendments are specified.

If a non-fulfilment of validation protocol criteria, or a risk to the achievement of project objectives is identified, a "**Corrective Action Request**" is formulated. This is in particular the case where:

- mistakes have been made with a direct influence on project results
- there is a risk that the project would not be accepted as a JI project
- there is a risk that emission reductions will not be certified

If the amount or quality of reviewed information is insufficient for a unequivocal understanding of project relevant topics, a "**Clarification Request**" is formulated.

4 CONCLUSIONS

The following conclusions on the project compliance are divided in five parts, following the structure of the Validation Protocol. Whereas in the first two parts results are presented at an aggregated level, the other three parts describe the results at a more detailed project oriented level.
After an initial assessment, GFA Terra Systems / TÜV Süddeutschland has presented a preliminary validation report to the PCF with the Corrective Action and Clarification Requests. These requests figure in the left columns of the tables below. The responses from PCF and the Romanian project developers were then evaluated and summarized in the right columns of the tables and are taken into account, together with stakeholder comments to the PDD and BS posted on the PCF website, for the final validation opinion in chapter 5.

4.1 Mandatory Requirements

Discussion

At the present stage of project development, the **approval of parties** has satisfactorily progressed. A Letter of Endorsement to the IBRD as Trustee of PCF has been signed by Ministry of Water and Environmental Protection (MWEP) on Oct. 26, 2001, a Draft Letter of Approval is presently reviewed by MWEP together with a Draft Host Country Agreement of Nov. 16, 2001, version Febr. 22, 2002 and the NFA has received a Draft Emission Reductions Purchase Agreement, dated of Febr. 22, 2002.

The **additionality** of the CO_2 reductions that shall be achieved in the project depends on many factors. Seven of these were considered to need some (minor) modifications, so that CAR were issued, regarding the project's spatial and temporal boundaries, the accounting of secondary CO_2

emissions caused by project activities, the calculation and rational of permanent ERUs, initial soil carbon measurements and baseline boundary. The CARs are presented in detail in the sub-chapters 4.3 and 4.4.

The proposed **baseline** needed a minor correction regarding its boundary (see 4.4) and in the **monitoring plan** the indicators for socially sustainable development should be reduced and some training of monitoring personnel should be foreseen (4.5).

Other **non-UNFCCC/KP/COP requirements**, like those requested by PCF and national requirements, are fulfilled.

Conclusion

Regarding additionality, baseline and the monitoring plan a provisional CAR was formulated, and has been resolved in the discussion process.

4.2 Additional PCF Requirements

Discussion

From the eight additional requirements, one is not applicable (transfer of EST) and another one (production of high quality ERs) needed to be improved. Details are explained in 4.3 and 4.4.

Conclusion

For the problem encountered for high quality ERs, a provisional CAR was formulated, presented in 4.3 and 4.4 and has been resolved with the PCF and the Project Developers.

4.3 Project Description Requirements

Discussion

In the project description the definition of the spatial and temporal limits of the project was contradictory. This has been resolved with a clear reference to the 6,728 ha of afforestation area in the PDD and to the desired project length (30 years). The coverage of project based emissions were initially not completed – which has been solved with minor corrections. In the calculations of the sequestered CO_2 the calculations are not following exactly the described methodology, so the latter should be amended and all parameters used in the model should be clearly stated in the Annex. An other issue to address was how the non-permanence of storage due to the harvesting cycles are taken into account. The calculated 15 year ERUs do not reflect this presently. In the PDD there is a mix in the terminology between ERUs (the UNFCCC official term) and ERs, the meaning of which is unclear. It should be defined, or if the meaning is the same, only the official term should be used. For the soil carbon accounting in the CO2Fix model, the initial soil carbon content has apparently been set to zero – so no negative values can be calculated in the first years (e.g. due to ploughing).

The probability of emissions leakage is not discussed in much detail. Although from the information provided, the validator would agree that leakage may be very low the reasons given for this assumption should be quantified. E.g. for the sake of the project's invulnerability it would be important to demonstrate that

- the NFA will not disregard its current afforestation plans outside the project, by including the overall afforestation plans for the next 5 – 10 years

- the timber produced will not have mayor influences on the timber prices and timber consumption
- the shift of horses and other animals from the islands will not reduce create carbon emissions in other grazing lands

No CAR was formulated for leakage, but we like to draw the attention of PCF and Project Developers to this topic.

The recalculation of the carbon amounts with GORCAM yielded similar results for robinia III and IV and poplar III, but some differences that should be further analysed for robinia V, oak IV and oak V (see Appendix 1).

Requests for Corrective Action (CAR) and/or Clarification (CR)

Draft report clarifications and corrective action requests by validation team	PCF response and validation team conclusion
1) CAR: Clear definition of project's spatial (geographical) boundaries There are misconceptions over project, geographical and system boundaries. Whereas in the BS the project area comprises 6,728 ha in 7 counties with 23 locations, in the PCN (1.4 f) the boundaries of the project are defined as those of the Romanian Plain and Lower Danube Floodplain. The PDD defines the geographical boundary as "90 percent of the Romanian forests", and the system boundaries "All of Romania's forests and agricultural land, which is or could be forested". Plots are delineated on cadastral maps but not always in the field	***PCF response:*** (1) The correct data are in the final version of the BS, which is more recent than the PCN. The PCN has not been updated to reflect the final projections. Project, baseline and system boundaries are the same, i.e. the 6,728 ha. (2) Last week the NFA organized a tender for conducting all the measurements of the plots. Each plot will have boundaries marked on the field, and a very precise map. Delineation will start on July 1, 2002. The NDA has also delivered very good maps of the plots to the NFA. ***Validation team Conclusion:*** The CAR is resolved by the revised BS, stating that the project boundary is equal to the afforestation area (6,728 ha) and the foreseen demarcation of the plots.
2) CAR: Clear definition of project's temporal boundaries In the BS (A4, p.18) the project period and correspondent financial analyses stipulate 30 years. The PCN (1.5) defines a 15 year project performance period and the generated ERs are calculated for this purchase period – in line with the amount proposed in the ERPA or the PDD	***PCF response:*** The project period is 30 years, which corresponds to one Robinia rotation. This is different from the purchasing period, which was set at 15 years. In this manner the total purchase volume by the PCF (1 MtCO2e) is about half the 100 year average carbon sequestration (1.9 MtCO2e).). This has been included in Section 4 of the PDD. ***Validation team Conclusion:*** The Validator agrees with a project period of 30 years that should be quoted in the PDD and the relation of the claimed amount of carbon to the 100 year average of carbon sequestration given in the PDD. The CAR is resolved.

3) CAR: Complete coverage of GHG emissions and sinks in the project design The use of tractors for site preparation purposes releasing CO_2 has been addressed in the PDD and the ER-calculations. Other sources of CO_2 from the use of engines like project cars, chain saws for site clearing, thinnings or, in the 30 year model harvesting operations and road building machines have not yet been included in the calculations or argumentations. As done in chapter 4.5 of the BS & MP, project emissions cannot be subsumed under "baseline deductions". This is especially cumbersome in the case where vegetation will be removed for site clearing. Assuming the initial vegetation cover and soil carbon as stable, this is the only valid baseline. Removing the vegetation and turning it into the soil are measurable project activities and the change of soil carbon will already be accounted in the monitoring – so the deduction from 8.6 t/ha to 7.5 t /ha (*Amorpha*) and from 2.0 t/ha to 1.8 t /ha (vineyards) seems not feasible.	***PCF response:*** (1) CO_2 emissions will result from the use of project cars and chainsaws during project implementation. These numbers are expected to be small and so were not included in the table above. For example, using the following parameters (gasoline consumption of a car = 10 litres/100 km; travel = 25,000 km/yr; carbon content of gasoline = 19.4 lb CO_2/gallon; US gallon = 3.79 litres; 5 project cars; 15 years), the emissions of the project cars would be 435 tCO_2 or 119 tC over the 15 years of the project. Emissions from chainsaws would be even smaller. A chainsaw consumes about 0.2 litre of gasoline per m^3 felled. Around 140,000 m^3 would be thinned over a period of 15 years. Using the same coefficients as above, this means that the use of chainsaws for the purpose of the project would cause the emissions of 65 tCO_2 or 18 tC over the 15 years. (2) The key is to make sure that credits are not claimed when they are not allowed. Theoretically you are correct that the baseline is the existing soil carbon and vegetation – in other words the present land use is basically carbon neutral with respect to the atmosphere – but this section under 4.5 is talking about net emissions reductions. This is taking into consideration the sinks from the afforestation and the sources from the land clearing activities. One could argue that the deduction of 1 tC/ha for *Amorpha* and the 0.2 t C/ha for the other species should not have been taken. The table in Section 4.5 has been corrected accordingly. We will assume that as part of the land preparation no soil carbon and all the carbon from the vegetation cleared are assumed to be oxidized in the year of site preparation. ***Validation team Conclusion:*** The possible sources of CO_2-emissions have been taken into account in the BS. The CAR is resolved.
4) CAR: Complete and transparent documentation of GHG calculations The quoted methodology of apportionment between stems and branches lead to different CAI than quoted in table 3 (p. 10 of TFEAR) although the CAI totals are correct. Methodology description should be amended. It remains unclear, if the claimed ERs of 15 year tree growth represents a long-term carbon sequestration average over various	***PCF response:*** (1) Yield table values based on diameter and height were used to provide an initial estimate of apportioning the total CAI values between stems and branches (TFEAR). In the baseline study these values were then compared with parameters used in other CO2Fix models. Adjustments were made to the ratios to account

stand rotations (with clear cuts of *Robinia* after 30 years, *Quercus* after 100 years and *Populus / Salix* as permanent stands, or how the non-permanence of carbon stored is taken into account (ton-year approach, etc.). In the case of JI landuse projects, any lack of permanence implies a credit sharing agreement between investor and host country, because the host country will need to report them in future inventories. From the tables presented it seems as if values for 16 years were calculated for the 15 year refunding period. This should be explained with a statement in what moment of the year the measurements were taken. A small difference remains between the PDD (1,019,047 t CO_2) and the PCN (1,057,473 t CO_2) ERs.	for (a) unavailability and unreliability of yield table data for young growth, (b) yield table values show cumulative ratio and not that for particular year/age and (c) ratios used by other users of CO2Fix. It is recognized that this approach is an approximation and best estimate based on the data available. To overcome this lack of reliable data for apportioning biomass, ICAS (with NFA financing) will undertake a series of field measurements this summer in crops aged 15 and younger to determine data-based apportionment values and regression equations for biomass components. (2) Permanence: The PCF feels comfortable with the permanence of the newly established forests for the reasons given in answer to CAR #2, and the fact that field measurements have consistently revealed higher sequestration levels than the model's predictions. No further measures are deemed necessary. 3) Strictly speaking, the PCF will start paying for ERs generated in the fall of 2002. However, we have agreed that we will also buy the ERs generated by the 500 ha afforested in the spring of 2002, given that the additionality of those 500 ha was established as well, even before the project could officially become effective. Including the 2002 and 2017 seasons makes up 16 years. If you only count starting in 2003, which is when the first PCF payment will be made, then it is only 15 years. (4) The final predicted sequestration level at 15 years of age is 1.018 MtCO2e (after corrections). A table and a chart have been included in Section 4 of the PDD. ***Validation team Conclusion:*** The validator accepts the explanations, the correction in the PDD and the proposal for additional field measurements. The CAR is resolved.

Conclusion

After the successful response of PCF and the project developers, the provisional CARs formulated are considered as resolved.

4.4 Project Baseline Requirements

Discussion

The PDD addresses financial additionality by weighing various land use alternatives, according to their internal rate of return. The most likely alternative, the use of the area for grazing lands is then taken as the project baseline. If project development costs were taken into account, the calculated FIRR will be slightly lower. However, it is unlikely that this would change the overall reasoning that the carbon credits raise the financial return of the plantation to a level that is acceptable for state forestry departments. To check this, a **CR** has been formulated. Apart from providing sufficient funding for afforestation, NFA should also be in the position to cover the maintenance cost of the plantation.

To take into account any initial soil carbon loss it is important to monitor the soil carbon before any site preparation is done. This should be clearly stated in the report and is requested as **CAR**.

The project baseline boundaries should be identical with the project boundaries – a **CAR** that may be rapidly resolved.

Requests for Corrective Action (CAR) and/or Clarification (CR)

Draft report clarifications and corrective action requests by validation team	PCF response and validation team conclusion
5) CR: Transparent application of methodology and determination of baseline The statistic of NFA afforestations in the period 1991-2000 and the FIRR and NPV calculated for the 6 alternative land-use options and the project (with and without carbon credits) is transparent. As no project development costs are quoted, that the PCF will charge back to the Project in form of lower annual payments for emission reductions, the calculated FIRR with carbon credits may be lower. The value of oak plantations in year 30 may slightly increase if the discounted harvest value of year 100 were calculated instead of the value of immature oak of 30 year age.	***PCF Response:*** This is correct: the FIRR will be lower, but only slightly so, as the FIRR is not very sensitive to the value of carbon. Recovery of the around $130,000 in preparation costs in the first three years of the project and deduction of $25,000 every 5 years for independent verification brings the FIRR down to 3.7% compared to 3.8% before these adjustments. Most importantly, this does not affect the ranking of options based on FIRR/NPV without carbon, which is important for identifying the baseline scenario. Pasture remains the most attractive option in the absence of carbon payments. ***Validation team conclusion:*** The answer is entirely accepted. The CAR is resolved.
6) CAR: Choice of the most likely operational characteristics for baseline carbon (1) CO_2-emissions caused by the foreseen plowing can only be taken into account if the planned initial soil carbon measurements will be carried out before site preparation. The soil carbon measurements taken so far only served to prepare themonitoring plan, that includes permanent plots, a minimum number of samples per plot and quality assurance. Presently only 63 samples from the planned 6,728 ha, i.e. only 1 sample for more than 100 ha were taken (see Table B-2 on p. 32, BS & MP), whereas the number of plots needed to reach the desired level of	***PCF Response:*** (1) First, as the BS report shows, the values for soil carbon before ploughing on typical sites are known. Second, it is unlikely that soil carbon emissions from ploughing the soil will be an issue: the soils have been ploughed and cultivated for decades and the soil carbon is likely at a new steady state already. Thus no further soil carbon emissions are expected. (2) As noted in other responses, not all lands

carbon difference detection is far higher (see Table B-10 on page 43). In the chapter 6.0 "Frequency of Carbon Monitoring and Reporting" the BS & MP report states (p. 47) that "For those strata where soil carbon will be monitored over time (all Robinia sites), initial carbon measurements are needed to establish the starting conditions." We suggest this should be done in all strata, where the project wants to claim soil carbon credits. More than 2,000 ha were pasture lands that have not been ploughed – a listing is given in Table D-1 (p.87). So if the Monitoring Plan already foresees an initial statistically reliable soil carbon measurement, we recommend doing it before the site treatments are done and on all sites where soil carbon credits will be claimed. (2) The save way is to complete the initial monitoring measurement before sites or soils are treated. Exceptions are acceptable if a) later no carbon credits will be claimed, as suggested above for the Oak in Tulcea country, or b) the soil were ploughed periodically before and are therefore in a steady state, or c) the sites (e.g. Braila islands) are planted without much delay after ploughing and the measurements take place shortly after planting the trees in order to have minimal periods of carbon losses. The "measurements infrastructure" is not considered to present a mayor obstacle to measurements before ploughing, as each plot will have boundaries marked on the field and delineation will start on July 1, 2002. So measure points can be traced easily or GPS points may also be good enough for soil sampling.	will be ploughed (see report section 4.5 for more details). Most of the lands that will not be ploughed are those where pastures already exist. As said above the soils carbon loss due to ploughing will not be a factor as it is already at a new steady state. If the project wishes to claim soil carbon credits, then after the sites have been planted, it is recommended that the initial soil carbon be measured according to the plan outlined in section 4.3 using the number of plots recommended. This will serve as the baseline conditions against which future changes will be measured. It is not necessary to measure the soil carbon in these plots before site preparation. In fact it is noted that the sites to be planted with Oak in Tulcea county do not show a clear pattern on soil carbon accumulation with converting from pasture to forests and it may not be worth measuring these sites. These sites tend to be those with pastures. In sum, the strategy outlined for soils sampling is sound and samples do not need to be collected before site preparation in our estimation. The other reason for proceeding along these lines is timing: there is enough going on in planting without insisting that soil samples be collected first. Setting up permanent sample plots and taking measurements leaves behind infrastructure (plot center markers, etc.) and this would interfere with the site preparation. When the soils are sampled according to the plan outlined in the report, they will serve as the carbon content at time zero and serve as the bases for future measurements and future offset calculations. (3) The project definitely meet both conditions b) and c), i.e. b) ploughing has taken place periodically in the past, and c) the sites will be planted shortly after ploughing and the measurements will take place shortly after planting. PCF will ask the NFA to take good note of these caveats. ***Validation team conclusion:*** The answers fulfil the request. The CAR is resolved.
7) CAR: Clear definition of baseline boundaries According to COP7 Criteria for baseline setting, baseline boundaries should be identical to project boundaries. These should only refer to the 6,728 ha in 7 counties with 23 locations, not (as stated in the PCN 1.4 f) to the entire Romanian Plain and Lower Danube Floodplain	***PCF Response:*** The PCN is out of date and superseded by the BS. BS and project boundaries are identical – 6,728 ha. ***Validation team conclusion:*** The answer fulfils the request. The CAR is resolved.

Conclusion

The CR and CARs formulated are resolved with the answers given by PCF and the Project Developers.

4.5 Monitoring and Verification Protocol Requirements

Discussion

The choice of monitoring indicators should be operational and directly related to the project. Whereas this is the case for the ecological indicators, for the social indicators a CAR is formulated to reduce the number of indicators.

For the realization of the complex monitoring, trained personnel need be in place. Presently it remains undefined in 5.6 of the section B in the BL & MP if NFA researchers or local foresters will conduct the monitoring. A reference should be made how, when and by whom training will be provided including the estimated budget requirements.

The foreseen periods for monitoring are 5 years (vegetation) and 10 years (soil). Soil carbon should be monitored before or shortly after site preparation (compare 4.4). PCF may consider if monitored values may be needed at the beginning and ending of the first CP (2008-12).

Requests for Corrective Action (CAR) and/or Clarification (CR)

Draft report clarifications and corrective action requests by validation team	PCF response and validation team conclusion
8) CAR: Reasonable choice of indicators for socially sustainable development From the 11 social indicators listed according to the criteria "social, economic, life quality and social support for the project" only those that can be directly attributed to the project and measured should be used for monitoring: forestry related jobs, forest related illegal actions, attitude towards the project.	***PCF Response:*** We propose to include two sets of indicators. The first set will include only those indicators directly linked to the project, i.e. forestry related jobs, forest related illegal actions, attitude towards the project. At the insistence of the social scientist in the baseline study team, the second set will include other indicators of long-term social impact. ***Validation team conclusion:*** The verification will be based on the first set of indicators and the second set serves as background information. The CAR is resolved.
9) CAR: Procedures for training of monitoring personnel Up to now, no special training procedures are outlined.	***PCF Response:*** The final monitoring data entry sheets, questionnaires and workbooks are being prepared for the carbon, social and biodiversity aspects. They expect to be ready by the end of July 2002. Based on these, the data collectors and processors will be trained. The NFA will be in charge of the carbon aspects, and contract the social and biodiversity monitoring experts in those fields. Only NFA staff need training in monitoring, as the experts do this routinely.

	Validation team conclusion: The answer fulfils the request. The CAR is resolved.

Conclusion

The two CAR provisionally formulated are satisfactorily addressed and resolved by PCF and the Project Developers.

5 VALIDATION /DETERMINATION OPINION

In general, the proposed project is well designed and likely to yield positive ecological, social and economical outputs. The few identified shortcomings in the project design were addressed in this report and consequently resolved in the discussion process with the PCF and the project developers.

During the 30 days public posting of the PDD and BS on the PCF website, two comments were received. The authors of these comments raised their concerns regarding the use of *Robinia pseudoacacia* as exotic/naturalized species with potentially invasive properties, biodiversity values of the plantations, the genetics of the native black poplars, possible N_2O and CO_2 emissions from the soils and baseline considerations (accounting of the existing vegetation, business-as-usual reforestation by the NFA). The validator considers the public replies given by PCF and the project developers as fully satisfying.

In conclusion, GFA Terra Systems and TÜV Süddeutschland recommend the project for UNFCCC registration.

The present determination is based on the information received and the ToR. GFA Terra Systems and TÜV Süddeutschland cannot guarantee the correctness of this information and can hence not be held liable by any parties for decisions made or not made, based on this report. All information provided and identified as confidential by PCF will be kept confidential by the GFA Terra Systems and TÜV Süddeutschland.

6 REFERENCES

Reviewed Principal Documents

Project design documents for validation /determination:

- PCF (2002): *Romania Afforestation of Degraded Agricultural Land Project - Project Design Document* (confidential)
- Winrock International et al. and PCF (2002): *Baseline Study, Emission Reductions Projection and Monitoring Plans* (confidential)

Project background documents:

- *Project Idea Note*
- *Project Concept Note* (confidential)
- *Social Assessment*
- *Technical, Financial and Environmental Assessment Report*
- *Project Concept Document*
- *PCF Host Country Agreement (Draft)* (confidential)
- *PCF Term Sheet for Emission Reductions Purchase Agreement (Draft)* (confidential)

PCF background documents:

- PCF (1999): *Validation, Verification and Certification for PCF Projects*. PCF Implementation Note No. 4.
- PCF (1999): *Baseline Methodologies for PCF Projects*. PCF Implementation Note No. 3.
- PCF (2000): *PCF Preliminary Validation Manual*. PCF Implementation Note No. 6.
- PCF (2000): *Latvia: Liepaja Regional Solid Waste Management Project*.
- Det Norkse Veritas (2000): *Validation Report and Validation Opinion*.
- World Bank / Det Norske Veritas (2000): *Validation of te Lieparja Regional Solid Waste Management Project Report.*
- World Bank / Det Norske Veritas (2001): *Validation of the Chacabuquito Hydropower Project.*

Additional Documents

- Giurgiu et al. (1973): *Biometria arborilor si arboretelor din Romania*
- UNFCCC Secretariat (2001): *Project cycle of the clean development mechanism*. Bonn
- Vine, E., J. Sathaye and W. Makundi (1999): *Guidelines for the Monitoring, Evaluation, Reporting, Verification, and Certification of Forestry Projects for Climate Change Mitigation.* Ernest Orlando Lawrence Berkeley National Laboratory.
- Ministry of Economic Affairs of the Netherlands (2000): *Operational Guidelines for Baseline Studies, Validation, Monitoring and Verification of Joint Implementation Projects.*

Persons interviewed

Ciprian Pahontu	National Forest Administration, Head of Forestation Department
Viorel Blujdea	ICAS, Project Developer
Malina Voicu	Romanian Academy – The Research Institute for the Quality of Life, Sociologist and Research Fellow
Constantin Harjeu	Ministry of Waters and Environmental Protection, Directorate of International Programmes and Projects, Counsellor
Litescu Mihai	Ministry of Agriculture, Food and Forests, Directorate Forest Strategies, Policies and Legislation, Director
Claudiu Zaharescu	Ministry of Agriculture, Food and Forests, Directorate Forest Strategies, Policies and Legislation, Counsellor
Dragoi Nicolae	Municipality of Dabuleni, Mayor
Enescu Dan	NFA District Office Dabuleni, Head
Vladu Dan	NFA District Office Dabuleni, Forest Agent
Vicol Costica	NFA District Office Braila, Chief Engineer
Cosmina Moisei	NFA District Office Braila, Forest Engineer
Nicoleta Negru	Environmental Protection Inspectorate Braila, Counsellor
Voicu Gheorghe	General Directorate of Agriculture and Food Braila, Director General
Olteanu Vasile	General Directorate of Agriculture and Food Braila, Counsellor
Folea Dorel	NFA Forest Central Board of Ialomita, Forest Engineer
Bordas Misu	NFA District Office Lacu Sarat, Chief Engineer
Radu Moisei	NFA District Office Lacu Sarat, Forest Engineer

7 APPENDIX 1: COMPARISON CO2FIX-RESULTS / GORCAM

The Graz - Oakridge Carbon Accounting Model (GORCAM) is an independent model to assess the carbon balance of Land Use, Land-Use Change, Forestry and Bioenergy Strategies developed by Joanneum Research and Oak Ridge National Laboratory. The authors are Bernhard Schlamadinger, Greg Marland and Lorenza Canella. The model is made available for research purposes.

In the following the results of a comparative analysis of the carbon credits projected in the Baseline Study with the CO2Fix Model and the GORCAM Model are presented for the 6 species / site classes and the foreseen afforestation areas of each of them. In general the models match fairly well, with the bigger (and according to the initial monitoring measurements) and more realistic values provided by GORCAM. The most significant differences were detected with oak IV, oak V and robinia V (see the table below).

	Robinia III	Robinia IV	Robinia V	Poplar III	Oak IV	Oak V
CO2fix 15	109 683	24 107	8 466	114 555	1366	2120
GORCAM 15	114 822	22 402	12 065	119 119	2166	5380
CO2fix 29	222 742	51 120	24 287	221 587	4645	7185
GORCAM 29	260 256	55 247	30 002	249 717	5600	13210

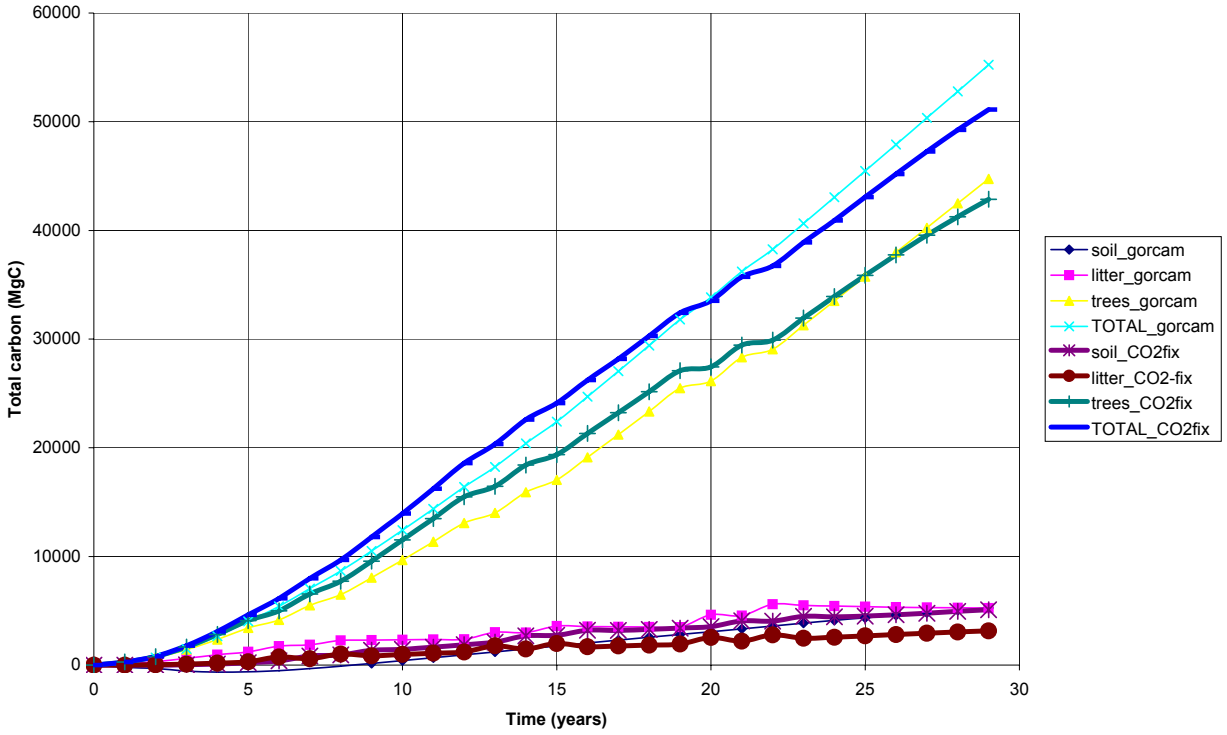
The GORCAM calculations include the same carbon pools as the CO2fix calculations with the exception of wood products as these cannot be credited (the project does necessarily result in an increase of the wood products pool size).

Relative differences between the GORCAM and the CO2fix model runs are insignificant (except for Robinia V), if one uses the same model inputs. The diagram below shows this using the Robinia IV example. Some of the difference can be explained with the way the models handle thinning (GORCAM assumes a somewhat increased growth rate after thinning), some of the difference results form the fact that the latest GORCAM version allocates biomass to product and slash categories uniformly across thinning events, whereas CO2fix allows changes between thinning events. Another difference is that GORCAM assumes the fraction of root biomass to be constant over time, whereas CO2fix does not. All in all, however, the differences are much smaller than the uncertainties underlying the input parameters of both models. Especially the soil carbon balance is highly sensitive to the combination of initial carbon stock and decay rate. Further, the yield table values are 30+ years old and management regime, as well as ambient conditions, may have changed significantly since then. Therefore, it is of greater importance to investigate the difference between measurement-based and model-based carbon estimates (there is currently a difference by a factor of 1,5 to 4), rather than further refining the model calculations.

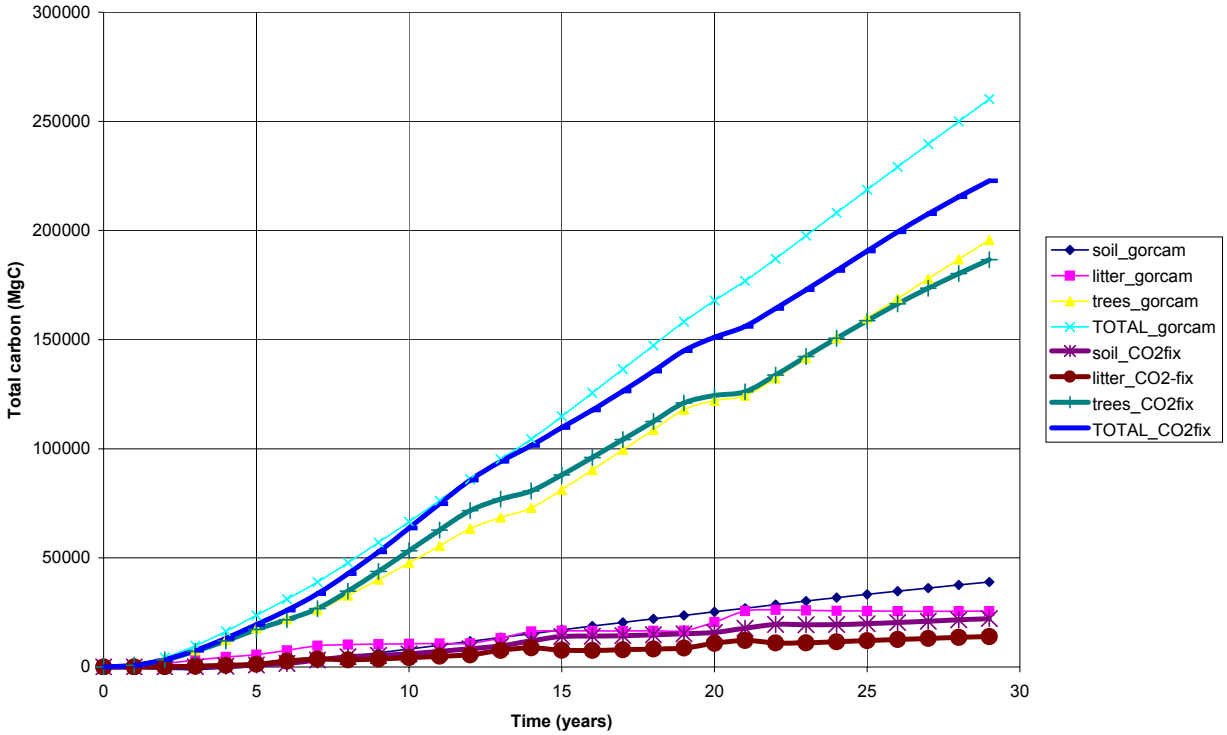
It is worth mentioning that the CO2fix model runs obviously assume an initial soil carbon pool size of zero, which may tend to overestimate the initial carbon uptake in soils, In fact, GORCAM shows a slight initial loss of soil carbon which results from the fact that soil carbon starts from a higher initial level. One recommendation for future simulations is to separate between a fast and a slow root turnover pool, because the fast turnover pool (fine roots) may play a significant role in soil carbon buildup.

Robinia site class IV:

The lines end at year 29, because in year 30 the first age cohort is already subject to harvesting. Bold lines are CO2-fix results.



Robinia site class III:

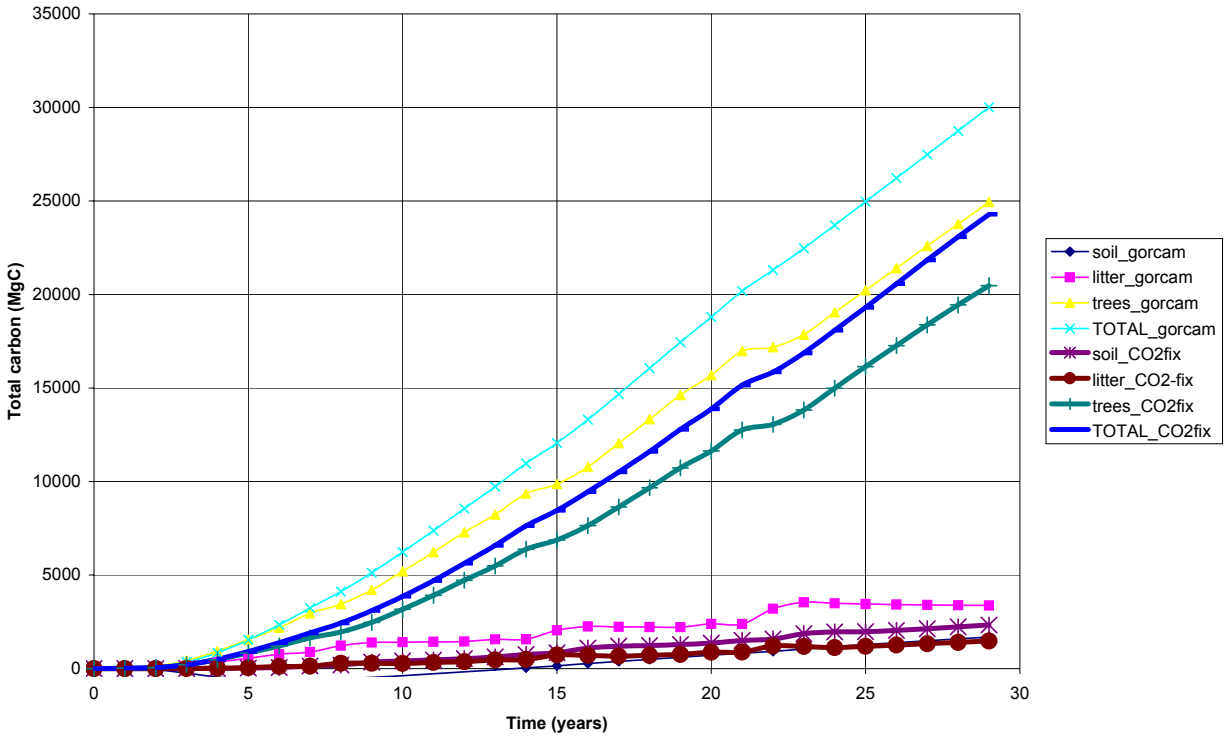


Robinia site class V:

The match for Robinia V is not as good as for Robinia III and IV, the main difference being carbon in biomass.
A brief consistency check goes as follows:

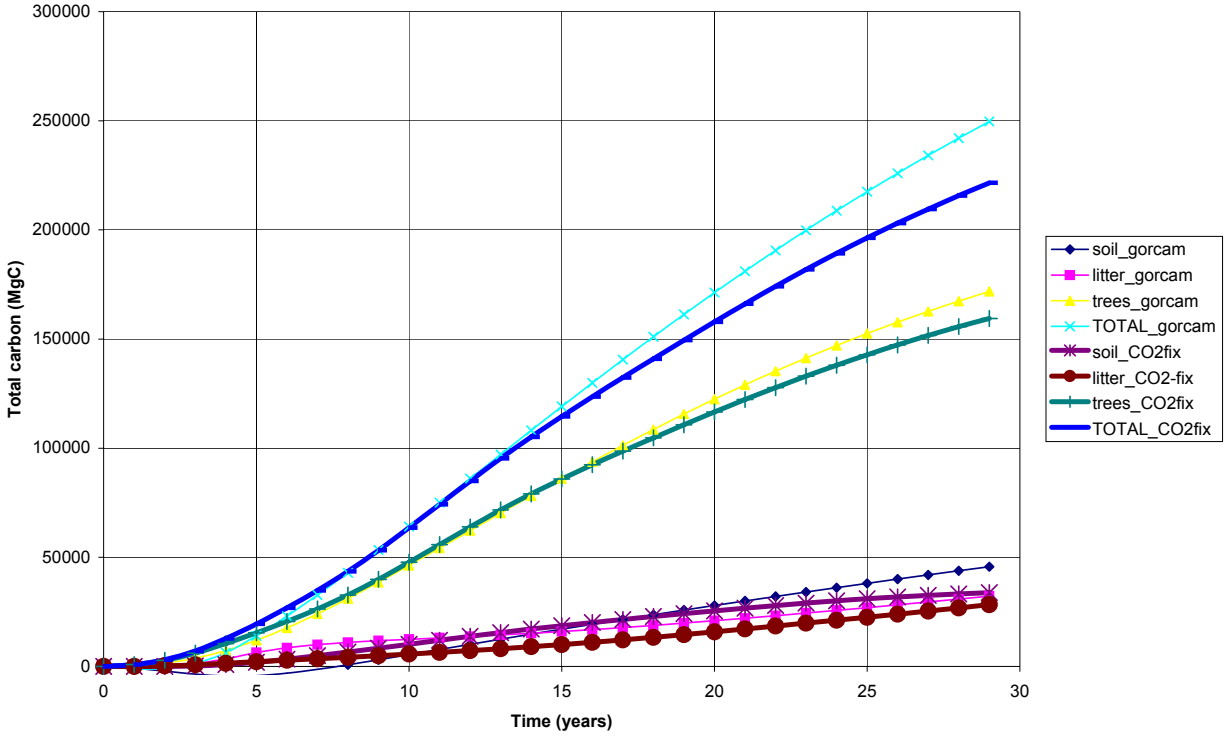
	Yield at age 30 (m3)	Area	Yield x area	BM Carbon age 29
Robinia IV	144	722	103 968	42863
Robinia V	77	796	61 292 (59%)	20477

The value marked yellow is questioned here. Looking simply at predicted yield and area, one would expect that this yield class sequesters 59% of what yield class IV sequesters. This would result in a sequestration of 25 270 tC in biomass. However, the calculated amount from CO2fix is only 20477 tC.



Poplar site class III:

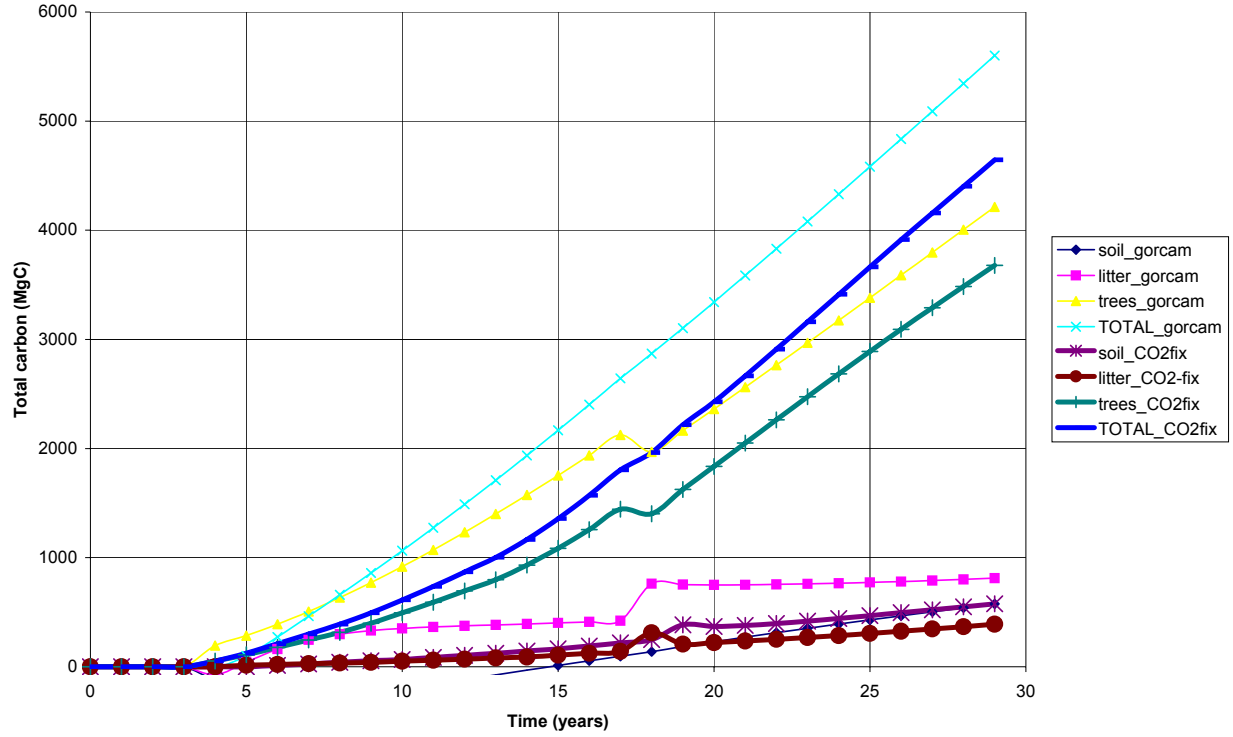
Main difference is that CO2fix has soil carbon increase from the beginning, whereas GORCAM shows an initial decrease. On the other hand, GORCAM shows a somewhat greater increase in the later years. Anyway, good match!



Oak site class IV:

Here the biomass values from CO2fix seem to be too low based on the yield table. This can also be demonstrated using a simple example. The yield table at age 10 shows a volume of 30 m3. This can be converted with the density used of 0.645 (see tech report page 9), carbon density of 0.5, and a low estimate of root biomass of 15%, and neglecting foliage, to 12 tC/ha, or for 142 ha, 1580 tC. GORCAM below already has a somewhat lower value than that, but CO2fix gives a much lower value at around 800 (the file "carbon spreadsheet" contains a biomass carbon value of 798 at time 13 (age 10 of this stand which is only planted in year 4).

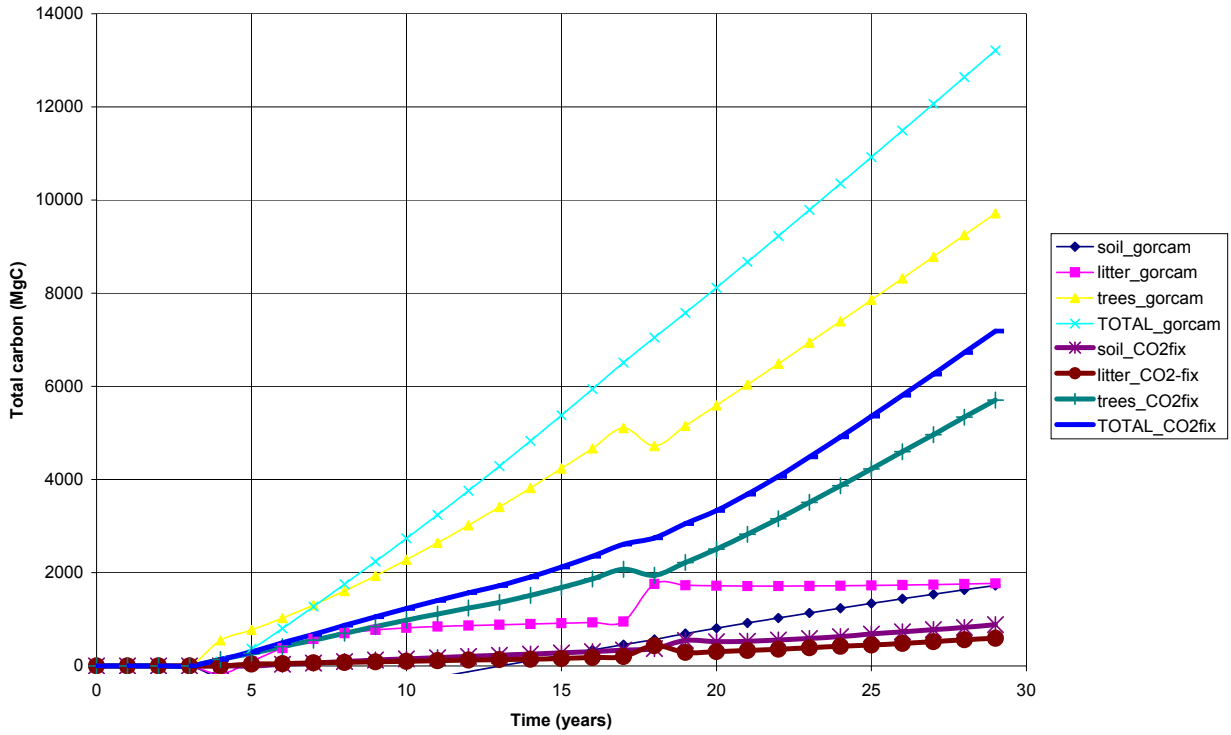
This difference in tree biomass may also explain why GORCAM has higher values for litter than CO2fix.



Oak site class V:

Here again the biomass values from CO2fix seem to be too low based on the yield table.

The yield table at age 10 shows a volume of 18 m3. This can be converted with the density used of 0.645 (see tech report page 9), carbon density of 0.5, and a low estimate of root biomass of 15%, and neglecting foliage, to 6,7 tC/ha, or for 430 ha, 2870 tC. CO2fix result at time 13 (age 10): 1363 tC. Something must be wrong here.



8 APPENDIX 2: DISCUSSION PROTOCOL (1+2)

Responds of the validator to the PCF's and project developers' remarks.

(1) refers to the first round of communication and (2) to the second round:

CAR # 1

PCF / PROJECT DEVELOPER:
OK on the geographical boundaries. I am perplexed by the system boundaries, however. In my understanding, the system boundaries encompass the land that could be subject to leakage. If this is so, then the system boundaries are indeed all the Romanian land that is and could be afforested. What do you think?

VALIDATOR:
We agree with a project boundary equal to the afforestation area (6,728 ha). This and the system boundary should be clearly defined in the project documents. As far as leakage is concerned (e.g. wood market distortions), the Romanian national territory may be a suitable system area. However, setting this boundary must lead to operationalized and measurable criteria on what to consider leakage.

CAR #2

PCF / PROJECT DEVELOPER:
All references to the PCN have little value in my view, since the PCN is clearly out of date and will not be updated. The BLS/MP/ERP and PDD supersede the PCN, as I indicated in my previous set of answers.

VALIDATOR:
We agree with a project period of 30 years that should quoted in the PDD.

CAR #3

PCF / PROJECT DEVELOPER:
(1) I will try to get figures on CO2 emissions from chainsaws over the 30 years of project life. Would you be satisfied with a lump sum deduction from the projected ERs by year 15 to reflect these emissions? This is going to be minimal, as you can imagine, much less most probably than the difference between CO2Fix simulation and actual sequestration level. There is no road building in the project. Emission from project cars are minimal. Do you insist on including those?
Regarding project cars and chainsaws, we wonder if you may be asking too much for this report. Instead we could make a note in the monitoring plan that additional use of cars and chainsaws will be monitored and their gas consumption tracked and the emissions from this taken into consideration. We expect this to

be small. For example, using the following parameters (gasoline consumption of a car = 10 litre/100 km; travel = 25,000 km/yr; carbon content of gasoline = 19.4 lb CO2/gallon; US gallon = 3.79 litre; 5 project cars; 15 years), I have estimated that the emissions of the project cars would be 435 tCO2 over the 15 years of the project. Emissions from chainsaws would be smaller.
(2) I do not follow your point about subsuming project emissions under baseline deductions.

VALIDATOR:
1) It should be possible to produce a simple calculation like you did for cars also for chainsaws (m³ felled, hours of chain saw work, fuel consumption). We recommend to have all these possible sources of emissions addressed in order not to present any open side for critics. Alternatively and / or additionally we find it a good idea to tackle this in the monitoring plan.
(2) An example: If there is a shrub cover of 10 t C/ha that would be eliminated by the project but completely turned into soil carbon, then, according to the present reasoning, there were no need to deduce anything. Instead, the first soil carbon monitoring would give a carbon value 10 t higher that the initial measurement and the project could claim 10 t of carbon gained by the elimination of the shrubs (which is wrong). And the same applies to the 10% carbon discount proposed for Amorpha and vineyards.

CAR #4

PCF / PROJECT DEVELOPER:
(1) Apportionment: We are working on this.
(2) Permanence: I thought I made my point clearly in my previous comments that there is no permanence problem in this project and the PCF's purchase volume is much less than the long-term average sequestration level.
(3) Strictly speaking, the PCF will start paying for ERs generated in the fall of 2002. However, we have agreed that we will also buy the ERs generated by the 500 ha afforested in the spring of 2002, given that the additionality of those 500 ha was established as well, even before the project could officially become effective. Including the 2002 and 2017 seasons makes up 16 years. If you only count starting in 2003, which is when the first PCF payment will be made, then it is only 15 years.

VALIDATOR:
(1) ok.
(2) We have no doubts about the permanence. The underlying assumption is that after the 15-year crediting period the liability goes over to the host country, which in our opinion should be stated in an appropriate place in the documents. The claimed amount of carbon of the 15 years purchasing period should refer to e.g. a long-term average of carbon sequestration (e.g. 100 years). The calculations and reasoning should be cited in the BS, so that it is clearly demonstrated on what calculation method it is based.
All parameters used in the CO2Fix model should be clearly resumed in one table.
(3) ok.

CR #5

PCF / PROJECT DEVELOPER:
This is correct: the FIRR will be lower, but only slightly so, as the FIRR is not very sensitive to the value of carbon. Recovery of the around $130,000 in preparation costs in the first three years of the project and deduction of $25,000 every 5 years for independent verification brings the FIRR down to 3.7% compared to 3.8% before these adjustments. Most importantly, this does not affect the ranking of options based on FIRR/NPV without carbon, which is important for identifying the base-line scenario. Pasture remains the most attractive option in the absence of carbon payments.

VALIDATOR:
Ok. This is resolved.

CAR #6

PCF / PROJECT DEVELOPER:
First, as the BS report shows, the values for soil carbon before ploughing on typical sites are known. Second, it is unlikely that soil carbon emissions from ploughing the soil will be an issue: the soils have been ploughed and cultivated for decades and the soil carbon is likely at a new steady state already. Thus no further soil carbon emissions are expected.

VALIDATOR:
The soil carbon measurements taken so far only served to prepare the monitoring plan, that includes permanent plots, a minimum number of samples per plot and quality assurance. Presently only 63 samples from the planned 6,728 ha, i.e. only 1 sample for more than 100 ha were taken (see Table B-2 on p. 32, BS & MP), whereas the number of plots needed to reach the desired level of carbon difference detection is far higher (see Table B-10 on page 43). In the chapter 6.0 "Frequency of Carbon Monitoring and Reporting" the BS & MP report states (p. 47) that "For those strata where soil carbon will be monitored over time (all Robinia sites), initial carbon measurements are needed to establish the starting conditions." We suggest this should be done in all strata, where the project wants to claim soil carbon credits.
More than 2,000 ha were pasture lands that have not been ploughed - a listing is given in Table D-1 (p.87).
So if the Monitoring Plan already foresees an initial statistically reliable soil carbon measurement, we recommend doing it before the site treatments are done and on all sites where soil carbon credits will be claimed.

CAR #7

PCF / PROJECT DEVELOPER:
The PCN is out of date and superseded by the BS. BS and project boundaries are identical – 6,728 ha.

VALIDATOR:

Ok. This is resolved.

CAR #8

PCF / PROJECT DEVELOPER:
(1) Agreed, only those indicators will be included in the MP when the final questionnaires are drafted.
(2) Generally speaking, I agree that there are some indicators which could be influenced by other factors, not just by the afforestation project, like the economic indicators. However, I think that it is important to see if the local communities affected by the afforestation will become more attractive for the potential migrants. If so, this fact indicates the positive impact of the project, from the social point of view. On the other hand, between the job creation and the increasing the number of the small enterprises in the area there is a direct connection.
Therefore, I suggest keeping in the monitoring plan the social indicators about: creation of new job opportunities, migration, law-braking, land ownership status, establishment of new industrial units in the area, attitudes towards forest, towards afforestation project and towards NFA. The cost of gathering data is the same for 4 or for 11 indicators, because in the case of this survey, the biggest expanses are that of transportation, accommodation and per diem for the fieldwork operators and these costs is the same for 4 or for 11 indicators.

VALIDATOR:
(1) Ok. This is resolved then.
(2) From our viewpoint it is basically not a matter of cost saving (which of course should also be taken into account) but a matter of clear logic and attribution of effects to the project. Monitoring unclear relations can result in misleading conclusions, that may be used against the project later. So from the new jobs and enterprises created, only those connected to forestry or forest products should count, law-breaking only of forestry or forest product issues, land ownership changes cannot be directly attributed to the project as no people will be displaced, industrial units see jobs & enterprises, attitudes ok. The more specific issues might actually require more work for the differentiation than just looking at the statistics, how many people moved to a village or what is the number of total tax payers in a village.

CAR #9
PCF / PROJECT DEVELOPER:
(no comment yet)

VALIDATOR:
The question is still open.

9 APPENDIX 3: DISCUSSION PROTOCOL (3+4)

Responds of the validator to the PCF's and project developers' remarks.

(3) refers to the first round of communication and (4) to the second round:

CAR # 6

PCF / PROJECT DEVELOPER:
(3) As noted in other responses, not all lands will be ploughed (see report section 4.5 for more details). Most of the lands that will not be ploughed are those where pastures already exist. As said above the soils carbon loss due to ploughing will not be a factor as it is already at a new steady state. If the project wishes to claim soil carbon credits, then after the sites have been planted, it is recommended that the initial soil carbon be measured according to the plan outlined in section 4.3 using the number of plots recommended. This will serve as the baseline conditions against which future changes will be measured. It is not necessary to measure the soil carbon in these plots before site preparation. In fact it is noted that the sites to be planted with Oak in Tulcea county do not show a clear pattern on soil carbon accumulation with converting from pasture to forests and it may not be worth measuring these sites. These sites tend to be those with pastures. In sum, the strategy outlined for soils sampling is sound and samples do not need to be collected before site preparation in our estimation. The other reason for proceeding along these lines is timing: there is enough going on in planting without insisting that soil samples be collected first. Setting up permanent sample plots and taking measurements leaves behind infrastructure (plot centre markers, etc.) and this would interfere with the site preparation. When the soils are sampled according to the plan outlined in the report, they will serve as the carbon content at time zero and serve as the bases for future measurements and future offset calculations.

(4) We definitely meet both conditions b) and c), i.e. b) ploughing has taken place periodically in the past, and c) the sites will be planted shortly after ploughing and the measurements will take place shortly after planting. I think we now agree, and suggest that you record these statements in the validation report. I am asking the NFA to take good note of these caveats.

VALIDATOR:
(3) The save way is to complete the initial monitoring measurement before sites or soils are treated.
Exceptions are acceptable if

a) later no carbon credits will be claimed, as suggested above for the Oak

in Tulcea country, or
b) the soil were ploughed periodically before and are therefore in a steady state, or
c) the sites (e.g. Braila islands) are planted without much delay after ploughing and the measurements take place shortly after planting the trees in order to have minimal periods of carbon losses.

The "measurements infrastructure" is not considered to present a mayor obstacle to measurements before ploughing, as each plot will have boundaries marked on the field and delineation will start on July 1, 2002. So measure points can be traced easily or GPS points may also be good enough for soil sampling.

CAR # 8

PCF / PROJECT DEVELOPER:
(3) We propose to include two sets of indicators. The first set will include only those indicators directly linked to the project, i.e. forestry related jobs, forest related illegal actions, attitude towards the project. At the insistence of the social scientist in the baseline study team, the second set will include other indicators of long-term social impact.
(4)We agree on CAR #8.

VALIDATOR:
(3) We can accept this and recommend that the verification should be based on the first set of indicators while the second set serves as background information.

10 APPENDIX 4: VALIDATION PROTOCOL

VALIDATION PROTOCOL

Note: The CARs and CR quoted in the tables are discussed and resolved in the Determination Report.

TABLE 1. – MANDATORY REQUIREMENTS

Requirement	Ref.*	Conclusion †	Cross Reference to Checklist (Table 2)
1. *UNFCCC/ Kyoto Protocol/ COP7 Requirements*			
1.1. **UNFCCC/Kyoto Protocol/ COP7 Requirements for Joint Implementation**			
1.1.1. Approval of Parties (MoU or LoE)	KP Art. 6.1.a, COP7	Partly OK, partly pending	A1.1, A1.2, A1.3, A1.4
1.1.2. Reduction in GHG emissions must be additional	KP Art. 6.1.b, COP7	CAR1,2,3,4	B1.1,B1.2 B1.3, 0, B3.2, B2.7, 0, B3.4, B3.5, B3.7, B2.8, 0, 0, C1.2, C1.3, C2.1, C2.2, C2.3, C2.4, C2.5, C2.6, C2.7, C3.1, C3.2, C3.3, D1.1, D1.2, D2.1, D2.2, 0, D3.1, D3.2, D3.3, D3.4, D3.5, D3.6, 0, D3.9, D3.10, D3.11, D3.12, D3.13, D3.14, D3.15, D3.16, 0, D3.18, D3.19, D4.1, D4.2, D4.3, D4.4, D4.5, D4.6, D4.7, D4.8, D4.9, D4.10, D4.11, D4.12
1.1.3. Appropriate baseline and a monitoring plan	COP7	CAR 5,6,7,8,9	C., 0.
1.1.4. Ratification of the Kyoto Protocol	UNFCCC	OK	A1.5

* Reference to specific requirement: KP= Kyoto Protocol, Leg.= Other legislation (international, regional or national), PCF= Prototype Carbon Fund Requirement

† CAR = Corrective Action Request of risk or non-compliance with stated requirements, OK = acceptable, N/A = not applicable, CR = Clarification Request.

Requirement	Ref.*	Conclusion †	Cross Reference to Checklist (Table 2)
2. *Non-UNFCCC/KP/COP Requirements*			
2.1. **International and Regional Requirements**			
2.1.1. Is the project in compliance with international or regional directives, treaties or agreements?	Leg.	OK	B1.4, B1.7
2.2. **Host Country Requirements**			B2.5
2.2.1. Is the project in line with relevant legislation and plans in the host country?	Leg.	OK	A1.1, 0D4.11
2.2.2. Is the project in line with host-country specific JI requirements?	Leg.	OK	A1.1

ANNEX 1 TO TABLE 1. – ADDITIONAL PCF REQUIREMENTS

Requirement	Ref.	Conclusion	Cross Reference to Checklist (Table 2)
3. PCF Requirements for GHG projects			
3.1. Does the project design contribute to and is it in line with sustainable development priorities in host country?	PCF	OK	B1.6, B1.7, B2.5, B2.6, B2.8, B3.7, 0, C3.1, D2.2, 0, D4.11, D3.18, D3.19, D4.1, D4.2, D4.3, D4.4, D4.5, D4.6, D4.7, D4.8, D4.9, D4.10, D4.11, D4.12
3.2. Does the project design provide for learning potential and demonstration effects?	PCF	CAR 9	B2.4, D4.9
3.3. Does the project design promote transfer of environmentally sound technology (EST)?	PCF	N/A	-
3.4. Does the project design promote an equitable sharing of benefits and risks?	PCF	OK	A1.3, A1.4, 0, B3.5, C2.4, D3.1, D3.9, D3.10, , D3.11, D3.12, D3.13, D3.14, D3.15, D3.16

3.5.	Is the project design likely to produce "high quality" emission reductions*?	PCF, COP7	CAR 1,2,3,-4	B1.7, B2.1, 0, B3.2, 0, B3.4, B3.6, B3.7, 0, C1.2, C1.3, C1.4, C2.1, C2.2, C2.3, C2.4, C2.5, C2.6, C2.7, C3.1, C3.2, C3.3, D1.1, D1.2, D1.4, D2.1, 0, 0, D3.1, D3.2, D3.3, D3.4, D3.5, D3.6, D3.9, D3.10, , D3.11, D3.12, D3.13, D3.14, D3.15, D3.16, D4.1, D4.2, D4.3, D4.4, D4.5, D4.6, D4.7, D4.8, D4.9, D4.10, D4.11, D4.12
3.6.	Is the project technology well tested and commercially available?	PCF	OK	B2.1, 0, B2.4
3.7.	Is the project in line with PCF financing criteria?	PCF	OK	A1.4, C2.4
3.8.	Are there any possible conflict of interest situations? If so, does the project have provisions for managing such conflicts?	PCF	OK	B1.7,,B2.5 B2.7, B2.8, 0, 0, 0, C1.2, C1.4, C2.1, C3.1, D1.2, D1.3, D1.4,

* Emission reductions that are real, measurable and give long-term benefits related to the mitigation of climate change.

TABLE 2 REQUIREMENTS CHECKLIST

Checklist Question	Ref.	MoV*	Comments	Concl.	Cross Reference to Requirements (Table 1)
A Political and Legal Project Arrangements		.			
A1.1 Has the Host Country signed a Letter of Endorsement (LoE)?	LoE	DR	LoE to the IBRD as Trustee of PCF signed by Ministry of Water and Environmental Protection (MWEP) on Oct. 26, 2001	OK	1.1.1, 2.2.1
A1.2 Has the Host Country signed a Letter of Approval (LoA)?	LoA	DR, I	Draft LoA presently reviewed by MWEP	OK	1.1.1
A1.3 Has a Host Country Agreement (HCA) been signed between Romania and IBRD?	HCA	DR,	Draft HCA of Nov. 16, 2001, version Febr. 22, 2002 presently reviewed by MWEP	OK	1.1.1
A1.4 Has an Emission Reductions Purchase Agreement (ERPA) been signed between NFA and IBRD?	HCA	DR,	Draft ERPA of Febr. 22, 2002 presently reviewed by NFA	OK	1.1.1
A1.5 Has the host country signed the Kyoto Protocol?		DR	19.03.2001	OK	1.1.4
B Project Description			*Project description must be reviewed to ensure that all aspects related to direct and indirect emissions are captured in the project design and are considered in projecting emission reductions.*		
B1. Project Boundaries			*Project Boundaries are the limits and borders defining the GHG emission reduction project.*		
B1.1 Are the project's spatial (geographical) boundaries clearly defined?	BS & MP, PCN	DR	Whereas in the BS the project area comprises 6,728 ha in 7 counties with 23 locations, in the PCN (1.4 f) the boundaries of the project are defined as those of the Romanian Plain and Lower Danube Floodplain. Plots are delineated on cadastral maps but not always in the field	CAR 1	1.1.2, 3.5 Annex I: 3.5, 3.8

* Means of Verification: DR = Document Review, I = Interview

Checklist Question		Ref.	MoV*	Comments	Concl.	Cross Reference to Requirements (Table 1)
B1.2	Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	BS & MP	DR	GHG mitigation is provided by tree growth of 4 main species and soil carbon accumulation	OK	1.1.2, 3.5 0, 3.8
B1.3	Are the project's temporal boundaries clearly defined?	BS & MP, PCN, PDD	DR	In the BS (A4, p.18) the project period and correspondent financial analyses stipulate 30 years. The PCN (1.5) defines a 15 year project performance period and the generated ERs are calculated for this purchase period – in line with the amount proposed in the ERPA or the PDD	CAR 2	1.1.2, 0, 0, 3.8
B1.4	Are there any existing host country laws that require the use of a particular technology related to the project?	Leg.	DR	Forest laws require the use of recognized seed sources and good forest practice	OK	2.2.1, 2.2.2 0, 3.8
B1.5	Is the current political situation in the host country likely to change in a direction that will create stricter environmental legislation or better enforcement of existing laws and regulations?		I	In view of the intention of Romania to join the European Community environmental legislation will certainly improve. However, this is not likely to effect the project design.	OK	2.2.1, 2.2.2
B1.6	Will the macro-economic trends in the host country have an impact on project baseline or performance?		I	It is not likely that the economic situation of the country will change drastically regarding the afforestation situation	OK	2.2.1, 2.2.2 3.1
B1.7	Will the political aspirations of the host country have any impact on project baseline or performance?		I	Not likely	OK	2.2.1, 2.2.2. 3.1, 0, 3.8
B2.	**Project Design**			*Validation of project design focuses on the project engineering, choice of technology, environmental impact and the design documentation of the GHG emission reduction project*		
B2.1	Does the project design engineering reflect current good practices?	BS	DR	The design of JI-Afforestation Projects is fairly new but the technical design reflect good forestry practices	OK	1.1.2, 0 Annex I: 3.2, 3.3, 3.5, 3.6

B2.2	Does the project technology represent state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	BS	DR, field visit	Afforestation techniques and species reflect good practices	OK	1.1.2, 0 Annex I: 3.2, 3.3, 3.5, 3.6
B2.3	Is the project technology likely to be substituted by other or more efficient technologies within the project period?	BS	DR, field visit	This is not likely as standard forest technology is used	OK	1.1.2, 0 Annex I: 3.3, 3.5, 3.6
B2.4	Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period? Does the project make provisions for meeting training and maintenance needs?	BS & MP	DR	No, nothing exceptional. Training for CO_2-monitoring foreseen in the fixed costs (B.5.6), annual maintenance costs are included in the project financial analyses	OK	3.2, 3.6
B2.5	Is the project in line with sustainable development policies of the host country?	PCN	DR, I	Romanian forestry policy and international agreements like the Agreement on the Danube Green Corridor and various national strategies are concurrent with the project goals	OK	2.2, 3.1, ,3.8
B2.6	Will the project create other environmental or social benefits than GHG emission reductions?	BS & MP, PCN	DR	Planting of native poplars and willows on Danube islands will improve habitats. The planting of degraded agricultural sites will protect soils and adjacent fields. Employment opportunities will be created.	OK	3.1
B2.7	Will the project create any adverse environmental or social effects?	BS & MP	DR, I	No adverse environmental effects. Some displacement of illegal grazing (Danube islands) may occur	OK	1.1.2, 3.1
B2.8	Have identified social and environmental impacts been addressed in the project design?	BS & MP	DR	Yes, the project will try to support the development of alternative grazing grounds with additional funds	OK	1.1.2, 3.1
B3.	**Predicted Project GHG Emissions and Sinks**			*Validation of predicted project GHG emissions and sinks will focus on methodology, transparency and completeness in predictions*		

B3.1	Are all aspects related to direct and indirect GHG emissions and sinks captured in the project design?	BS & MP, PDD	DR	There are two sources of CO_2 emissions from the project: On some 5000 ha soil work (turning plough, 35 cm depth) will lead to soil carbon mineralization (see 2.2.3). The use of cars, tractors, chainsaws, etc. will release CO_2 that is addressed only in the PDD, but not in the ER-calculations. Project sinks through tree growth are clear.	CAR 3	1.1.2, 0, 3.8
B3.2	Are the GHG calculations documented in a complete and transparent manner? Have conservative assumptions been used?	BS & MP, TFEAR PCN, PDD	DR, I	The quoted methodology of apportionment between stems and branches lead to different CAI than quoted in table 3 (p. 10 of TFEAR) although the CAI Totals are correct. Methodology description should be amended. Conservative assumptions have been used. However, it remains unclear, if the claimed ERs of 15 year tree growth represents a long-term carbon sequestration average over various stand rotations (with clear cuts of *Robinia* after 30 years, *Quercus* after 100 years and *Populus / Salix* as permanent stands, or how the non-permanence of carbon stored is taken into account (ton-year approach, etc.). A difference remains between the PDD (946,710 t CO_2) and the PCN (1,057,473 t CO_2) ERs. The 30-year average does obviously not take into account the first *Robinia* harvest. There is no comparability between the average carbon benefit for project lifetime and the crediting period, resulting in a lack of transparency over investor-host credit sharing.	CAR 4	1.1.2, 0

B3.3	Are uncertainties and risks in the GHG estimates properly addressed in the documentation?	BS & MP, PCN, PDD	DR	Possible risks from leakage, grazing, drought, fire, disease, wind, model predictions, yield tables use, site productivity classes, illegal felling and financial and technical capacity have been addressed. ERs include a volume and carbon reduction factor of 10%, conservative estimates and technical measures. Additionally, the auditors recommend to foresee a system of fire protection strips in larger forest plots of dry sites (e.g. Dolj county).	OK	1.1.2, 3.4, 0, 3.8
B3.4	Have all relevant greenhouse gases and source categories listed in KP Annex A been evaluated?	BS & MP, PDD	DR	Only CO_2 will be accounted as no methane (CH_4) or nitrous oxide (N_2O) are likely to occur because of the absence of swamps and no use of fertilizers.	OK	1.1.2, 0
B3.5	Is the assumed crediting time reasonable?	BS & MP	DR	The crediting period covers the years 2002 up to 2017. This involves a special arrangement of PCF with the Host Country for the years 2002-2007, the 1st CP (2008-12) and a still undefined 2nd CP (2013-2017). We consider the risk involved as minor.	OK	1.1.2, 3.4, 0
B3.6	Will the project result in carbon credits (ERs) compared to the baseline case?	BS & MP	DR	Yes, baseline case is degraded pasture, *Amorpha*-shrubs and some agricultural crops or abandoned lands.	OK	1.1.2, 3.1, 0
B3.7	Are potential leakage effects beyond the chosen project boundaries properly identified and have they been properly accounted for in calculations?	BS & MP	DR	Leakage, caused by e.g. deforestation of animals that currently are grazing on the plots foreseen for afforestation is highly unlikely due to the small wood areas and NFA vigilance.	OK	1.1.2, 3.1, 0
C	***Project Baseline***			*Baseline means the scenario that reasonably represents the GHG emissions or sinks that would occur in the absence of project activities. Validation of project baseline must establish whether the selected baseline is relevant, and represents the most likely scenario of all possible baselines.*		
C1.	**Baseline Methodology**			*The methodology used to select the baseline will be validated with respect to suitability for the type of project and the transparency of its use*		

C1.1	Is the discussion and selection of the baseline methodology transparent?	BS & MP,	DR	Yes, backward- and forward-looking methods were chosen and transparently described	OK	1.1.2, 3.1, 0, 3.8
C1.2	Is the application of the methodology and the discussion and determination of the chosen baseline transparent?	BS & MP	DR	The statistic of NFA afforestations in the period 1991-2000 and the FIRR and NPV calculated for the 6 alternative land-use options and the project (with and without carbon credits) is transparent. As no project development costs are quoted, that the PCF will charge back to the Project in form of lower annual payments for emission reductions, the calculated FIRR with carbon credits may be lower. The value of oak plantations in year 30 may slightly increase if the discounted harvest value of year 100 were calculated instead of the value of immature oak of 30 year age.	CR 5	1.1.2, 0, 3.8
C1.3	Is the selected baseline methodology compatible with the available data?	BS & MP	DR, I	Yes, statistical data and crop sheets support the baseline methodology.	OK	1.1.2, 0
C1.4	Does the methodology comply with existing good practices?	BS & MP	DR	Standard agricultural and forestry practice has been taken into account.	OK	0, 3.8
C1.5	Is all literature and sources clearly referenced?	BS & MP	DR	Yes, either in footnotes or in reference chapters.	OK	
C2.	**Baseline Determination**			*The choice of baseline will be validated with focus on whether this is a likely scenario and whether the description is complete and transparent.*		
C2.1	Has the UNFCCC accepted / registered similar projects as JI/CDM projects?	BS & MP	DR	Registration procedures for JI-Projects are still in process and so far not institutions are established at the UNFCCC level.	OK	1.1.2, 0, 3.8
C2.2	Does the chosen baseline represent a likely scenario among other possible and/or discussed baselines?	BS & MP	DR	The baseline of either degraded crop or pasture lands with little or no natural tree regeneration over the project period is considered to be the most realistic scenario.	OK	1.1.2, 0

C2.3	Have the most relevant and likely operational characteristics and baseline indicators been chosen as reference for baseline carbon?	BS & MP, PDD	DR	Baseline vegetation like abandoned vineyards store 0.4-2.0 t C/ha and the 200 ha of *Amorpha* 4.2-9.6 t C/ha of which 0.4-1.8 t C/ha and 7.5 t C/ha will be considered for deduction if the areas are afforested. CO_2-emissions caused by the foreseen plowing can only be taken into account if the planned initial soil carbon measurements will be carried out before site preparation.	CAR 6	1.1.2, 0
C2.4	Have financial/economic or other relevant indicators needed for determining the base-line been presented for all alternatives?	BS & MP, TFEAR	DR	Complete spreadsheet calculations for the various alternatives are presented	OK	1.1.2, 3.4, 0, 3.7
C2.5	Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	BS & MP, COP7	DR	According to COP7 Criteria for baseline setting, baseline boundaries should be identical to project boundaries. These should only refer to the 6,728 ha in 7 counties with 23 locations, not (as stated in the PCN 1.4 f) to the entire Romanian Plain and Lower Danube Floodplain (compare 1.1.1)	CAR 7	1.1.2, 0
C2.6	Has the baseline been determined using conservative assumptions where possible?	BS & MP	DR	Conservative assumptions have been used in the baseline determination	OK	1.1.2, 0
C2.7	Have the major risks to the baseline been identified?	BS & MP	DR	No substantial risks present in the baseline assump-tions.	OK	1.1.2, 3.4, 0
C3.	**Baseline GHG Emissions and Sinks**			*Validation of baseline GHG emissions will focus on methodology, transparency and completeness in emission estimations.*		
C3.1	Are the GHG calculations documented in a complete and transparent manner? Are the emission reduction projections conservative?	BS & MP	DR	In the baseline scenario of degraded lands, no sig-nificant carbon accumulation would occur. This could be clearer expressed in the BS.	OK	1.1.2, 3.1, 0, 3.8
C3.2	Are uncertainties in the GHG emissions or sinks estimates properly addressed in the documentation?	BS & MP	DR	Regarding baseline scenarios yes.	OK	1.1.2, 0
C3.3	Have the project baseline(s) and the project emissions and sinks been determined using the same appropriate methodology and con-servative assumptions?	BS & MP	DR	Yes, although in the baseline no substantial carbon gains or loses would occur.	OK	1.1.2, 0

D **Monitoring *and Verification Protocol***			*A review of the MVP should establish whether all relevant project aspects deemed necessary to monitor, report and verify reliable emission reductions are properly addressed.*		
D1. MVP Boundaries			*A review of MVP Boundaries will establish whether the scope, objectives and use of the MVP are clearly described.*		
D1.1 Does the MVP address requirements for all data and indicators that enable a later successful verification?	BS & MP	DR	Yes. It should be made clear, that the initial soil carbon measurements needed to establish the starting conditions are taken before the soils are plowed. Reasons should be given why 30 cm depth was chosen for the soil sampling.	OK	1.1.2, 0, 3.8
D1.2 Is the MVP clear and user friendly?	BS & MP	DR	Yes, together with the Appendix VIII.	OK	1.1.2, 3.1, 0, 3.8
D1.3 Does the MVP clearly reference all literature used?	BS & MP	DR	Yes	OK	1.1.2, 0, 3.8
D1.4 Does the MVP comply with relevant standards or good monitoring and reporting practices?	BS & MP	DR	Yes, e.g. in comparison with other standards like the "*Guidelines for the Monitoring, Evaluation, Reporting, Verification, and Certification of Forestry Projects for Climate Change Mitigation*" by the Berkeley National Laboratory.	OK	1.1.2, 3.5, 3.8
D2. Monitoring			*Validator will ensure that the boundaries to monitor and measure project and baseline performance are defined and complete.*		
D2.1 Are the monitoring and verification provisions in the MVP consistent with the project boundaries in the baseline study?	BS & MP	DR	Yes,comprising the afforestation area, the biomass sections and soil compartment.	OK	1.1.2, 0
D2.2 Are the monitoring boundaries clearly defined for baseline and the project indicators relating to social and environmental issues?	BS & MP	DR	For social issues the baseline comprises the residential area (communes) affected by the afforestation that are listed. The monitoring boundaries regarding environmental issues are still using the old project area of 6,922 ha (p. 90)and should be amended to the actual 6,728 ha.	OK	1.1.2, 3.1

D2.3	Are the monitoring boundaries clearly defined for baseline and the project indicators related to baseline validity?	BS & MP	DR	The M & M plan will measure and monitor the quantity of carbon accruing on planted sites (6,728 ha) over the project period. Baseline carbon values were measured in 10 land use types. These values are considered as static and no future measurement of baseline carbon development is foreseen.	OK	1.1.2, 0
D2.4	Have any needs for monitoring outside the project boundaries been evaluated and if so, included as applicable?	BS & MP	DR	The baseline for social issues is clearly and with good reasons outside the project boundary of 6,728 ha.	OK	1.1.2, 3.1, 0, 3.8
D3.	**MVP Methodologies**			*Validator will establish whether choices of monitorable indicators and measuring methodologies are reliable and complete to monitor project GHG performance over time.*		
D3.1	Does the choice of MVP methodologies allow conservative, transparent, accurate and complete calculation of the ex post GHG emissions?	BS & MP	DR	Yes, the number of permanent measurement and monitoring sample plots will allow for a desired precision level of 7%.	OK	1.1.2, 3.4, 0
D3.2	Are rationales for selection and use of methodologies clearly explained?	BS & MP	DR	Yes, except the chosen depth of soil (30 cm).	OK	1.1.2, 3.2, 0
D3.3	Are formulas used for calculations stated and calculations incorporated or referenced?	BS & MP	DR	Yes	OK	1.1.2, 0
D3.4	If applicable, is a methodology for updating the baseline and project emissions forecasts during the project lifetime included in the MVP?	BS & MP	DR	No	N/A	1.1.2, 3.4, 0
D3.5	Are methodologies for determining and/or mitigating possible monitoring errors or uncertainties addressed?	BS & MP	DR	Yes, a quality assurance and quality control (QA/QC) plan is outlined.	OK	1.1.2, 3.4, 0
D3.6	Are methodologies for calculating emission reductions implemented in a sound, conservative and transparent manner and do they comply with existing good practice?	BS & MP	DR	Yes, standard procedures and a standard model (CO2Fix) are used for biomass, litter and soil carbon calculations.	OK	1.1.2, 0

D3.7	Are the selected methodologies supported by the monitored and recorded data?	BS & MP	DR	According to the field measurements, the CO2Fix model underestimates the carbon stocks in above-ground biomass and litter and gives similar trends for the soil carbon.	OK	1.1.2, 0
D3.8	Indicators/data to be monitored and reported			*Validator will check that choices of indicators are reasonable and complete to monitor the specific performance over time.*		
D3.9	Are the choices of project GHG indicators reasonable?	BS & MP	DR	The change of carbon stocks in trees, litter, dead wood and the soil will accurately indicate the GHG impact of the project.	OK	1.1.2, 3.4, 0
D3.10	Will it be possible to monitor / measure the specified project GHG indicators?	BS & MP	DR	Yes, using the proposes methodology.	OK	1.1.2, 3.4, 0
D3.11	Will the indicators give opportunity for real measurements of achieved emission reductions?	BS & MP	DR	Yes	OK	1.1.2, 3.4, 0
D3.12	Will the indicators enable comparison of project data and performance over time?	BS & MP	DR	Yes, changes of carbon stocks will be monitored with CO2Fix software and every 5 years (biomass) or 10 years (soil, litter) adjustments will be made. It may be recommendable to measure the carbon at the beginning and at the end of the 1st commitment period (2008-12).	OK	1.1.2, 3.4, 0
D3.13	Have indicators for GHG leakage been included?	BS & MP	DR	No leakage identified.	N/A	1.1.2, 3.4, 0
D3.14	Will it be possible to monitor the specified GHG leakage indicators?	BS & MP	DR	No indicators for leakage specified.	N/A	1.1.2, 3.4, 0
D3.15	Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	BS & MP	DR	Baseline indicators comprise soil carbon for 10 different land use scenarios and aboveground bio-mass (abandoned vineyards and orchards, *Amor-pha*)	OK	1.1.2, 3.4, 0
D3.16	Will it be possible to monitor the specified baseline indicators?	BS & MP	DR	No future monitoring foreseen, as these sites will be afforested.	OK	1.1.2, 3.4, 0

D3.17	Is the choice of indicators for sustainability development (social, environmental) reasonable?	BS & MP	DR	From the 11 social indicators listed according to the criteria "social, economic, life quality and social support for the project" only those with direct relation to the project should be used for monitoring: forestry related jobs, forest related illegal actions, attitude towards the project. As indicator of biodiversity development the birds will be counted every 5 years along two-belt line transects in the project area and additionally in control plots.	CAR 8	1.1.2, 3.1
D3.18	Will it be possible to monitor the specified sustainable development indicators?	BS & MP	DR	Yes, with the shortened list of social indicators.	OK	1.1.2, 3.1
D3.19	Are the sustainable development indicators in line with stated national priorities in the Host Country?	BS & MP, PCN	DR, I	In the National Forest Policy and Strategy (2000) afforestation of degraded agricultural lands is one of the priorities. Rural employment and biodiversity are other national priority areas.	OK	1.1.2, 3.1
D4.	**Project Management Planning**			*Validator will check that project implementation is properly prepared for and that critical arrangements are addressed.*		
D4.1	Is the authority and responsibility of project management clearly described?	BS & MP	DR	Yes, it is clearly stated that the NFA is the project operator and the project sponsor.	OK	1.1.2, 3.1, 0
D4.2	Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	PDD, ERPA, BS & MP	DR	NFA as the seller of the ERs will be in charge to establish and maintain a system for the monitoring and recording of ER as required a the MP.	OK	1.1.2, 3.1, 0
D4.3	Are procedures identified for training of monitoring personnel?	BS & MP	DR	Not specifically.	CAR 9	1.1.2, 3.1, 0
D4.4	Are procedures identified for emergency preparedness?	BS & MP	DR	Not seen to be important	N/A	1.1.2, 3.1, 0
D4.5	Are procedures identified for calibration of equipment?	BS & MP	DR	Not seen to be important. Procedures for data checks provided.	OK	1.1.2, 3.1, 0
D4.6	Are procedures identified for monitoring of maintenance needs for equipment and installations?	BS & MP	DR	Not necessary	N/A	1.1.2, 3.1, 0

D4.7	Are procedures identified for monitoring, taking measurements and reporting?	BS & MP	DR	Sufficient details are provided. Reporting will use the CO2Fix model with a true-up after every 5 years period	OK	1.1.2, 3.1, 0
D4.8	Are procedures identified for day-to-day records handling, including what records to keep, storage of records and how to process performance documentation and possible data sensitivities?	BS & MP	DR	Instructions for data maintenance and storage are provided.	OK	1.1.2, 3.1, 0
D4.9	Are procedures identified for review of reported results/data?	BS & MP	DR	Yes, included in the Quality Assurance and Quality Control (QA/QC) Plan and the Standard Operating Procedures (SOP)	OK	1.1.2, 3.1, 0
D4.10	Are procedures identified for internal audits of GHG project compliance with operational requirements?	BS & MP	DR	Included in the QA/QC Plan and in the SOP.	OK	1.1.2, 3.1, 0
D4.11	Are procedures identified for project performance reviews?	BS & MP	DR	The QA/QC Plan stipulate the creation of a record, where all the performed steps (check sheets) are registered.	OK	1.1.2, 3.1, 0
D4.12	Are procedures identified for corrective actions?	BS & MP	DR	Various check for data error elimination are quoted.	OK	1.1.2, 3.1, 0
D5.	**Verification**					
D5.1	Does the MVP contain adequate provisions for verification of emission reductions achieved in compliance with stated project requirements?	BS & MP	DR	Third-party verification of project carbon generation is outlined.	OK	