	EUROPEAN COMMISSION RESEARCH & INNOVATION DG	Final Report

Project No: 212535

Project Acronym: CCTAME

Project Full Name: Climate Change - Terrestrial Adaption and Mitigation in Europe

Final Report

Period covered: from 01/06/2008 **to** 31/08/2011

Start date of project: 01/06/2008

Project coordinator name:
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Project coordinator organisation name:
INTERNATIONALES INSTITUT FUER ANGEWANDTE SYSTEMANALYSE

Date of preparation: 12/12/2011

Date of submission (SESAM):
12/12/2011

Version: 1

Final Report

PROJECT FINAL REPORT

Grant Agreement number:	212535
Project acronym:	CCTAME
Project title:	Climate Change - Terrestrial Adaption and Mitigation in Europe
Funding Scheme:	FP7-CP-FP
Project starting date:	01/06/2008
Project end date:	31/08/2011
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Final Report

Please note that the contents of the Final Report can be found in the attachment.

4.1 Final publishable summary report

Executive Summary

The CC-TAME project assessed the impacts of agricultural, climate, energy, forestry and other associated land-use policies, considering the resulting feed-backs on the climate system in the European Union. Geographically explicit biophysical models together with an integrated cluster of economic land-use models were coupled with a regional climate model to assess and identify mitigation and adaptation strategies in European agriculture and forestry.
Challenge
The main idea that led to the CC-TAME Project is the vision of implementing a "policy-model-data fusion" concept to guarantee efficient and effective mitigation and adaptation in the land-use sector and to maximize benefits from policy coordination with other EU policies.
Objectives
CC-TAME's aim was to build a strong Science-Policy interface by delivering timely, relevant and understandable information from state-of-the-art policy impact assessments to the policy community. The scientific-technical objective was to carry out an assessment of the efficiency of current and future land use adaptation and mitigation processes.
Concept
The concept of CC-TAME was to model explicit land use on farm/forest management practice level taking into account the emerging technological changes in the land-use sector and its associated industries. Regional climate models were coupled with biophysical ecosystem models, which generated a vast variety of production possibility sets for each geographic unit. State of the art economic models, which are embedded in the theory of modern welfare economics, used the rich sets of geographic explicit biophysical production possibilities to generate globally consistent local mitigation and adaptation land use strategies.
Main Results Achieved
CC-TAME has build an operational cluster of models to carry out policy impact studies in the land use sector under climate change. All biophysical CC-TAME models covering the forest and agricultural domain have been made consistent at global, European, and regional levels generating detailed model representation of a wide variety of management practices. Consistency has been established by building a large-scale model input data infrastructure and harmonized scenario generation protocols. Cross-scale validation of GHG responses to management change for the biophysical models has been performed. Model linkages have been tested and implemented to calculate reference scenarios, which are consistent across geographic scales, time and multiple sectors. The main result was the preparation of an operational and consistent methodology to carry out policy assessments for the LULUCF sector which are compliant with the reporting requirements under the United Nations Framework Convention for Climate Change (UNFCCC).
Apart from the mitigation work, CC-TAME has implemented regional climate scenarios and has carried out a fully fledged mitigation and adaptation analysis with the focus on the co-benefits of mitigation and adaptation. Furthermore, CC-TAME has provided integrated policy assessment on the efficiency and effectiveness of a variety of economic and regulatory instruments in the LULUCF sector. The CC-TAME model cluster was employed to assess a wide range of environmental, agricultural, forest, and energy policy scenarios. We found that policies that aimed at enhancing or preserving carbon stocks as well as policies aimed at reducing non-CO2 GHG emissions from agriculture also scored high with respect to ecosystem adaptation to climate change.
Policy Impact
CC-TAME has contributed tools, data and analysis to European policy making in the LULUCF sector. These tools were used to provide reference level information for reporting under the UNFCCC. Furthermore, CC-TAME tools were used to generate information entering the policy process on burden sharing for post-Kyoto climate policies in Europe and elsewhere.

Summary description of project context and objectives

Project Scope
The CC-TAME project assessed the impacts of agricultural, climate, energy, forestry and other associated land-use policies, considering the resulting feed-backs on the climate system in the European Union. Geographically explicit biophysical models together with an integrated cluster of economic land-use models were coupled with a regional climate model to assess and identify mitigation and adaptation strategies in European agriculture and forestry.
Challenge
Global historical emissions from land-use are estimated to exceed those from fossil fuels by some 25 % and are currently considered to be the second largest source of GHG emissions. In Europe, the agricultural sector is the third largest sector of greenhouse gas emissions, accounting for 9 % of EU-25 emissions. The main idea that led to the CC-TAME Project is the vision of implementing a "policy-model-data fusion" concept to guarantee efficient and effective mitigation and adaptation in the land-use sector and to maximize benefits from policy coordination with other EU policies.
At the beginning of the project the land use sector was not or poorly represented in European models for policy climate making. The CC-TAME project was designed to fill this gap.
Objectives
CC-TAME's aim was to build a strong Science-Policy interface by delivering timely, relevant and understandable information from state-of-the-art policy impact assessments to the policy community. The scientific-technical objective was to carry out an assessment of the efficiency of current and future land use adaptation and mitigation processes.
Concept
The concept of CC-TAME was to model explicit land use on farm/forest management practice level taking into account the emerging technological changes in the land-use sector and its associated industries. Regional climate models were coupled with biophysical ecosystem models, which generated a vast variety of production possibility sets for each geographic unit. State of the art economic models, which are embedded in the theory of modern welfare economics, used the rich sets of geographic explicit biophysical production possibilities to generate globally consistent local mitigation and adaptation land use strategies.
Main Results Achieved
CC-TAME has built an operational cluster of model to carry out policy impact studies in the land use sector under climate change. All biophysical CC-TAME models covering the forest and agricultural domain have been made consistent at global, European, and regional levels generating detailed model representation of a wide variety of management practices. Consistency has been established by building a large-scale model input data infrastructure and harmonized scenario generation protocols. Cross-scale validation of GHG responses to management change for the biophysical models has been performed. Model linkages have been tested and implemented to calculate reference scenarios, which are consistent across geographic scales, time and multiple sectors. The main result was the preparation of an operational and consistent methodology to carry out policy assessments for the LULUCF sector which are compliant with the reporting requirements under the United Nations Framework Convention for Climate Change (UNFCCC). Analysis of the economics of mitigation in the LULUCF sector has been tested the tools have been provided to interested parties in EU member states. CC-TAME has succeeded to establish a close working relationship with all member states in Europe and the UNFCC policy process at large by providing data, tools and analysis.
Apart from the mitigation work in CC-TAME the has implemented regional climate scenarios and has carried out a fully fledged mitigation and adaptation analysis with the focus on the co-benefits of mitigation and adaptation. We have singled out vulnerability hotspots in terms of geography and ecosystem type under the various climate change scenarios. Furthermore, CC-TAME has provided integrated policy assessment on the efficiency and effectiveness of a variety of economic and regulatory instruments in the LULUCF. The CC-TAME model cluster was employed to assess a wide range of environmental, agricultural, forest, and energy policy scenarios. We found that policies that aimed at enhancing or preserving carbon stocks as well as policies aimed at reducing non-CO2 GHG emissions from agriculture also scored high with respect to ecosystem adaptation to climate change.
The CC-TAME project has generated policy impact by contributing tools, data and analysis to European policy making in the land use and land use change and forestry (LULUCF) sector. These tools were used to provide reference level information for reporting under the UNFCCC. Furthermore, CC-TAME tools were used to generate information entering the policy process on burden sharing for post-Kyoto climate policies in Europe and elsewhere. Furthermore, CC-TAME scenarios have contributed to the 2050 low carbon economy roadmap which has been adopted by the

Commission. Finally, CC-TAME scenarios have contributed and will contribute to the IPCC AR5 assessments by contributing land use scenarios.
Finally, CC-TAME has produced more than 100 scientific papers and contributed to more than 150 conferences and workshops.

Description of main S & T results/foregrounds

Description of the main S&T results
CC-TAME has produced some 100 scientific papers most of which are already published in peer reviewed journals or are in submission stage. CC-TAME is still planning to produce a special issue with some estimated 20 peer reviewed papers in the open access journal Carbon Balance and Management. Due to the fact that there are still a number of papers in the making - due to the delays in climate change information - it is estimate that in the end CC-TAME will have produced some 150 peer reviewed papers.
In the following the main S&T results will be discussed starting with the issue of how CC-TAME managed to integrate multiple policy processes, its implementation success of its bottom-up approach and integrated policy scenario assessments. This section will be followed by a description of the S&T results by workpackage in close reference to the original DoW.

Integration of multiple policy processes
CC-TAME has created an integrated model cluster, which was used for LULUCF policy making by all EU member states. Furthermore, CC-TAME tools were used for the analysis of global land-use issues such as REDD+. The overall strategy of CC-TAME was tailored towards aligning and further developing existing decision support tools in the land-use sector to respond to demands from the climate policy process in Europe and under the UNFCCC. CC-TAME tools were informed by and informed policy makers interested in implementing changes in land-use practices for the post-Kyoto negotiations in Europe and the UNFCCC climate policy regimes. Policies to be analysed included those aimed at enhancing or preserving carbon stocks (national implementation of incentives provided by the Kyoto Protocol, for example), enhancing the use of bioenergy (Renewable Electricity Directive, Liquid Biofuels Directive, in the future a Renewable Heating and Cooling Directive), as well as policies aimed at reducing non-CO2 GHG emissions (CH4, N20) from agriculture. Analysis carried out with CC-TAME tools helped the process of coordinating climate policies with the Common Agricultural Policy, Rural development Strategy, EU Forestry Strategy, Forest Action Plan and a number of EU environmental policies such the CAFÉ, Soil thematic strategy and Biodiversity policy processes. These inclusion of such policies was made possible through a baseline methodology that was developed in CC-TAME. Bottom-up type models as suggested under CC-TAME have proven to provide excellent quantitative platforms to foster policy coordination across different, but linked policy "sectors". The main coordination function of the CC-TAME model cluster has been the generation of research tools and methodologies for the assessment and evaluation of impacts of alternative policies and estimating their associated costs and benefits of the policies. Thus, the overall modelling and policy relevant strategy of CC-TAME was aligned through the course of the project with those models of the European Consortium for Modelling of Air Pollution and Climate Strategies to which the major CC-TAME models are now linked and are actively participating. At the same time international modelling coordination was facilitated through joint development of major tools such as linking GLOBIOM with US-FASOM and G4M/BEWHERE with the terrestrial carbon modelling group at the National Institute for Environmental Studies in Japan, which are used for policy support in the respective countries. Also strong participation in the Land-use group of the Energy modelling Forum and the Forest and Agricultural Greenhouse Gas Modelling Forum will be conducive to international coordination of model based policy assessment. Finally, GLOBIOM has become part of the global AG-MIP exercise.

Model Integration by geographic and technologically explicit bottom-up approach
Through the geographically and technologically explicit bottom-up approach the CC-TAME project integrated seamlessly the regional climate model REMO (WP3000) with biophysical models of ecosystem management (WP 4000) and full fledged regional and national economic sector models (WP 5000). This multifaceted approach bridges geographic and temporal scales and integrates all major land-use sectors. CC-TAME methodological approach combines explicit crop/trees growth models operating on the plot scale that have sufficient, sub-national spatial detail to estimate the responses and adaptation possibilities of crops and trees. WP 3000 delivered daily climate projections to allow for scenarios of extreme climate events and changes in weather patterns. The methodological approach of CC-TAME allowed for consistent linkage to continental scale, which guarantees robustness and consistency in the assessment of sustainable and cost-effective GHG mitigating and adaptive management strategies and policies. CC-TAME employed a multitude of models on different scales, which allow for model comparisons and thus model uncertainties were assessed in a systematic manner. CC-TAME invested relatively large resources in building reliable and trustworthy data and assessment tools. The CC-TAME database has now become the core of the new modelling data infrastructure, which has been initiative by CC-TAME partners and will now pool resources from a number of large scale EU FP7 projects.

Integrated Policy Scenario Assessment
The data (WP2000) and analysis tools (WP3000, WP4000, and WP5000) of CC-TAME were employed in WP6000 to assess a wide range of environmental, agricultural, forest, and energy policy scenarios. The full scientific assessment has not yet been fully completed and will its results will be published in a special issue with target publication date of mid 2012. The more fast track assessments have been carried out for the LULUCF policy assessments. Particular policies which according to plan have been analysed include those aimed at enhancing or preserving carbon stocks (national implementation of incentives provided by the post-Kyoto policies), enhancing the use of bioenergy (Renewable Electricity Directive, Liquid Biofuels Directive, in the future a Renewable Heating and Cooling Directive), as well as policies aimed at reducing non-CO2 GHG emissions (CH4, N20) from agriculture. Biodiversity enhancement and soil improvement / preservation also form important policy objectives, which were tackled by CC-TAME research.

Policies were assessed individually and jointly following a strict model linkage protocol, which was developed in CC-TAME and used for additional policy impact studies. Heterogeneous qualities, multiple uses and physical limits are the reasons for complex impacts of land use policies. The integration and link between (a) site specific, biophysical modelling, (b) micro-economic farm level modelling, and (c) multi-sector, macro-economic modelling allowed us to embody both heterogeneous natural conditions and market adjustments in a globalizing world, through GLOBIOM, with internationally connected agricultural, forest products and energy markets.

Work performed according to Work Packages
CC-TAME was divided into nine separate Work Packages. WP 1000 Scoping of Policies provides the "Introduction" and "Background section" to the subsequent analysis. WP 2000 Data Infrastructure and Model support provides "Data" provision services to the modelling WPs and data validation functions. WP3000 Regional Climate Modelling, WP4000 Biophysical Modelling, and WP5000 Economic Modelling provide the "Methods" section. WP6000 Integrated Scenario Analysis stands for the "Results" section and WP 7000 Policy Assessment and Implications stands for the "Discussion" section and specially emphasis on policy issues. Finally, there are two support WPs. WP 8000 Policy Interaction, Communication and Dissemination serves policy engagement and dissemination functions of the project and WP 9000 Consortium Management and Coordination provides the management support for the CC-Consortium.
WP 1 Scoping of Policies
WP 1000 resulted in the preparation of a number of policy scenarios that were fed into subsequent work packages WP4000 by prioritizing the management options to be modelled in detail and WP6000 by (a) determining options how base year and baseline data are derived, and (b) for generating the linkages with climate and other policy objectives (socio-economic development, biodiversity, soil quality, etc.).
WP 2 Data Infrastructure and Model Support
WP 2000 delivered the data infrastructure needed by the different models and acted as a data supply

and validation service for the entire CC-Tame Consortium. The objectives of WP2000 were to identify, select and provide necessary data required by the analytical tools developed and applied in WP4000-6000 (biophysical and economical modelling) and WP7000 (validation for policy use).

As a major S&T accomplishment CC-TAME developed a new data infrastructure for European terrestrial ecosystem modelling that aims at facilitating the exchange of data and information between data provider and data user minimising transaction costs and maximising data availability for data users and data diffusion for data provider. At the core of the new data infrastructure are data servers providing the information on data availability and on the format the data are stored. At the basis of the systems stands the INSPIRE compliant European Reference Grid (ERG1) at a resolution of 1 km x 1 km. A Unified Spatial Data Characterisation Identifier (uscie) maps each of the pixels of the ERG1 unambiguously to a spatial unit of all spatial discretisations for which content is available. Participation of a wide range of scientific communities is achieved by including identifiers not only for the ERG1, but also for a grid in geographic projection, generally used by climate models.

Due to the geographically explicit approach, advanced data processing tools were built in a coherent database infrastructure so that the different landscape process as well as land-use optimisation models were implemented.

Data is now stored and analysed within the CC-TAME Data Management System (CADMS). It is a specific data service which provided data supply and support to the entire CC-TAME consortium and has now moved to become part of a major model data infrastructure.
WP 3 Regional Climate Modelling
WP3000 provided climate change information for Europe, which served as input for the crop/tree growth models in WP4000. Large resources were used to provide consistent bias correction such that the biophysical models were able to compute sensible climate impact scenarios. The climate change scenarios were calculated with the regional climate model REMO, based on future Emission scenarios provided by the Intergovernmental panel on climate change (IPCC) Special Report on Emission scenarios (SRES). The REMO simulations were done on a 0.22° horizontal resolution (approx. 25 x 25 km grid size). For a few vulnerable regions, higher resolution simulations with a resolution of 10km were used to serve as input for the vulnerability threshold analysis (WP4000).
In the second step, which is considered as the main S&T achievement, we included changes of land-use predicted by WP 4000-6000 in REMO and investigate feedback of land-use changes on climate. The sensitivity of the regional climate model to changes in land use was quantified and assessed to be relatively small.

WP 4 Biophysical Modelling of Land-use practices
Biophysical response strategies have been calculated with a wide variety of models, which allowed for model inter-comparisons with respect to differences in response to management change.
WP4000 has provided the main results with regard to the bio-physical response of agriculture (WP4100) and forestry (WP4200) to mitigation and adaptation strategies. As an S&T highlight it needs to be mentioned that results were not only generated for the geographic domain of Europe, but also for the globe.
Biophysical modelling allowed us to discover key vulnerabilities and vulnerable ecosystems where anticipative adaptation measures will be required. In the anticipation that water will appear as the main vulnerability defining element we a carried out an in-depth analysis of the Po-river watersheds and quantified key mitigation and adaptation strategies.
WP 5 Economic Modelling
The ultimate methodological aim of CC-TAME and the final S&T highlight of WP 500 was the generation of globally consistent national policy impact assessments. Consistency spans the spatial, temporal to sectorial dimensions. The CC-TAME's modelling framework integrated a diverse set of models and tools of different scales, which allowed for a comprehensive policy scenario assessment. To portray both variation in local conditions and interregional and global market feedbacks, CC-TAME coupled highly resolved biophysical and economic models at farm and forest level with global, full economy models. Technically, this required organization of an efficient communication between the different models. The general nature of this communication was as anticipated as follows:

Spatially highly resolved information from databases (observed and simulated data) were passed on

to climate and biophysical models to compute local environmental and economic impacts for relevant land use options. These options and their impacts were passed to micro-economic farm and forest models to compute policy specific aggregated response curves over detailed regions, enterprise types, and other features, which were only distinguished in micro-economic models. The aggregated response curves were then integrated in spatially less resolved macro-economic models to compute market feedbacks such as commodity supply changes, trade adjustments, and, most importantly, price changes. The process of upscaling was broken down into two steps. First, farm and forest model response curves were integrated into partial equilibrium agricultural and forest sector models. Second, aggregated agriculture and forest response curves were integrated into full economy models. Once the macroeconomic models have been solved, relevant information was then downscaled and passed back to micro-economic models. This type of model integration has been adopted my many other integrated assessments using larger scale modeling clusters.

With respect to WP5000 two S&T highlight areas of CC-TAME should be mentioned. First is a refined baseline methodology, which was developed with the dedicated baseline model CAPRI for the agricultural sector. Second, is a strand of new economic modelling approaches that were developed in CC-TAME assessing decision making under uncertainty given various simplified mitigation and adaptation options.
Within CCTAME, the Common Agricultural Policy Regionalised Impact (CAPRI) model was used for baseline scenario computations for the PostKyoto time horizon. The CAPRI baseline gives background data on the operational environment and trends in the agricultural sector, that are used in other models in the CCTAME consortium. The CAPRI methodology includes three major steps: (1) constrained trends, (2) technical baseline, (3) final baseline. Within CC-TAME CAPRI provided a sound review on the baseline methodology and developed new approaches to more consistently link to the other more structural and bottom-up models represented in CC-TAME.
Apart from the deterministic model which were further developed and linked within CC_TAME a variety of new approaches were developed to study how optimal land management strategies of farm/forestry enterprises of different types would change when uncertainty over market prices, climate and the response of crop and tree growth to climate were accounted for. A number of case studies were carried out to investigate robust decision making under uncertainty and risk. Three shall be mentioned here: (1) Integrated assessment of crop management portfolios in adapting to climate change in the Marchfeld region, (2) Large-Scale Modeling of Global Food Security and Adaptation under Crop Yield Uncertainty and (3) a model of forest owners facing uncertainty over climate and timber prices.

WP 6000 Integrated Scenario Analysis
In CC-TAME integrated scenario analysis has been performed involving all the the CC-TAME models. Starting from a reference scenario driven by assumptions of population and Gross Domestic Product (GDP) growth, bioenergy demand, environmental change assumptions, technical change storylines covering the agriculture, bioenergy, and forestry sectors a number of detailed LULUCF Policy Scenarios were analyzed. The detailed results from all models are still to be published in a special in the open access journal Carbon Balance and Management (CBM).

Land use, land-use change and forestry (LULUCF) policies include emission and activity based policies using price and/or quantity based instruments. Activities relate to afforestation (AFF), deforestation (DF), tillage and fertilization systems, bioenergy generation, and others. Furthermore, activity based policies include commodity trade restrictions. Emissions depict land use based changes in soil organic carbon levels, standing biomass stocks, and changes in trace gas and fossil fuel based carbon emissions. The CCTAME scenario analysis is about globally consistent national/local assessments. With respect to the global storyline Reducing Emissions from Deforestation and Degradation (REDD) has been modelled as the most important tropical LULUCF category where we focused on avoided deforestation. The list below shows the LULUCF policy scenarios that were run for the total integrated CC-TAME assessment.
1. EU GHG Emission targets
a. Target stringency: 20% & 30% by 2020
b. Target coverage (EU27 only; EU + new MSs)
c. LULUCF current (only ARD mandatory)
d. LULUCF+ (mandatory: agriculture, grasslands, and managed forests)
e. LULUCF++ (wetlands also mandatory)

f. Inclusion of LULUCF in EU-ETS
g. REDD+ credits: unlimited vs. percent to be agreed on.
h. Bioenergy
i. Second generation biofuels (do vs. do not enter market)
ii. Imports of biomass for energy prohibited from ROW or Non-Annex I countries
iii. Allowances required for CO2 resulting from combustion of biomass for energy (forest and agricultural sourced biomass)
i. Percent improvement in GHG emissions over fossil fuels (e.g. 0%, 35%, 50%)
j. Agricultural subsidies and import hurdles removed
2. ROW
a. REDD+ implemented; includes or does not include agricultural soils, grasslands, and peat lands
b. Caps by non EU Annex-I nations

Climate change mitigation through land use interacts with other policy objectives related to land use. In CCTAME, we therefore included interactions between climate mitigation and wetland biodiversity protection policies. Particularly, we analysed how given wetland biodiversity targets affect the necessary expansion of the NATURA 2000 habitat network and in turn change the greenhouse gas emission abatement cost curves.

To maximize consistency we iterated between micro- and macro-economic models.
CC-TAME employed two distinct time spans:
a. Near and medium term scenarios (until ~2030) to study the impact of policies on land use (mitigation scenarios), which fed into the European LULUCF policy process.
b. Longer term scenarios (until 2100 ... 2150) to study the feedback between land use, policies, and climate (mitigation and adaptation scenarios), which were and are still feeding into the IPCC process.

The major environmental impacts of CC-TAME scenarios include,
Total agricultural and forest land use including afforestation and deforestation
Land distribution between arable land, grassland, forest, and bioenergy plantations
Agricultural water use
Fertilizer use
Soil organic carbon changes on arable land
Bioenergy production
Forest biomass
GHG emissions from land use

Specific societal impacts include,
Average food calorie production
Average food calorie consumption
Ratio of plant product based food to livestock product based food
Food price index

Specific market impacts include for major agricultural, forest, and bioenergy commodities
Domestic production
Domestic use/consumption
Net trade
Price

Within CC-TAME we have also produce a new software tool, which allows frugal analysis of scenario outputs by a wider user community. CC-TAME scenarios were widely used for example for a REDD Cost study on the evolution of some deforestation drivers and their potential impacts on the costs of an avoiding deforestation scheme for DGENV, scenarios were used for the low carbon economy communication by DG CLIMA, in a number of LULUCF studies for DG-CLIMA and were used as the scientific background scenarios for the production of WWF's Living Forest Report. The latest sets of CC-TAME scenarios will be used in slightly altered parameterization for the AR5 SSP scenarios.
WP 7000 Policy Assessment and Implications
CC-TAME has created direct spin-offs in terms of policy studies, which were directly based on CC-TAME tools, data and knowledge. The following studies were carried out in direct connection to

the CC-TAME project:
* Long-term analysis of LULUCF options at EU level
* Analysis of potential and costs of LULUCF use by EU Member States
* REDD Cost, Study on the evolution of some deforestation drivers and their potential impacts on the costs of an avoiding deforestation scheme
* Model Application for Post-2012 Regime Global Policies and EU-27 Action

In addition GLOBIOM, which was mostly developed within CC-TAME contributed all of the terrestrial GHG scenarios of the the 2050 low carbon economy roadmap which has been adopted by the Commission. CC-TAME inputs have provided the analytical backbone of the impact assessment, and the scenarios have stood the inter-service consultation.

Thus, the results from the integrated CC-TAME model cluster were widely used to provide quantitative assessments in terms of cost-efficiency and environmental effectiveness of individual land-use practices, competitive LULUCF mitigation potentials (taking into account ancillary benefits, trade-offs and welfare impacts), and policy implications in terms of instrument design and the international negotiation process. The CC-TAME model cluster allowed to provide an evaluation of policy options at a great level of detail for EU25(27) in a post-Kyoto regime, as well as it offered perspectives on global longer-term policy strategies in accordance with the principles and objectives of the UNFCCC in a wider European land-use policy context.
Post-Kyoto assessment were quantitatively evaluated in terms of potential impacts of existing EU and member state legislation based on the latest perspectives on economic development, energy and agricultural policies and agreements on greenhouse gas emissions reductions, as well as the scope for further cost-effective measures to reduce greenhouse gas emissions from the LULUCF sector were explored. These analyses were carried out in close cooperation with the European Commission services to maximize the policy relevance of the assessment.

Potential impact and main dissemination activities and exploitation results

For the section on potential impact, please see attached PDF-due to imbedded figures and pictures (CC-TAME_Final Report_potential imact _121211.pdf)

For a list of CC-TAME publications and dissemination events, please see attached PDF (CCTAME_Publications_Dissemination_121211.pdf)

Address of project public website and relevant contact details

http://www.cctame.eu/
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4.2 Use and dissemination of foreground

Section A (public)

Publications (peer reviewed)

LIST OF SCIENTIFIC (PEER REVIEWED) PUBLICATIONS, STARTING WITH THE MOST IMPORTANT ONES										
No.	Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Date of publication	Relevant pages	Permanent identifiers (if applicable)	Is open access provided to this publication?
1	all CC-TAME publications and dissemination activities have been uploaded as pdf file (Other) with Section A: CCTAME_Publications_Dissemination_121211.pdf	various	n/a	n/a			12/12/2011	n/a		Yes

LIST OF DISSEMINATION ACTIVITIES								
No.	Type of activities	Main Leader	Title	Date	Place	Type of audience	Size of audience	Countries addressed

Section B (Confidential or public: confidential information marked clearly)

LIST OF APPLICATIONS FOR PATENTS, TRADEMARKS, REGISTERED DESIGNS,UTILITY MODELS, ETC.					
Type of IP Rights	Confidential	Foreseen embargo date dd/mm/yyyy	Application reference(s) (e.g. EP123456)	Subject or title of application	Applicant(s) (as on the application)

OVERVIEW TABLE WITH EXPLOITABLE FOREGROUND								
Type of Exploitable Foreground	Description of Exploitable Foreground	Confidential	Foreseen embargo date dd/mm/yyyy	Exploitable product(s) or measure(s)	Sector(s) of application	Timetable for commercial use or any other use	Patents or other IPR exploitation (licences)	Owner and Other Beneficiary(s) involved

ADDITIONAL TEMPLATE B2: OVERVIEW TABLE WITH EXPLOITABLE FOREGROUND	
Description of Exploitable Foreground	Explain of the Exploitable Foreground
	n/a

4.3 Report on societal implications

A. Ethics

1. Did your project undergo an Ethics Review (and/or Screening)?	No
If Yes: have you described the progress of compliance with the relevant Ethics Review/Screening Requirements in the frame of the periodic/final reports?	

2. Please indicate whether your project involved any of the following issues :

RESEARCH ON HUMANS

Did the project involve children?	No
Did the project involve patients?	No
Did the project involve persons not able to consent?	No
Did the project involve adult healthy volunteers?	No
Did the project involve Human genetic material?	No
Did the project involve Human biological samples?	No
Did the project involve Human data collection?	No

RESEARCH ON HUMAN EMBRYO/FOETUS

Did the project involve Human Embryos?	No
Did the project involve Human Foetal Tissue / Cells?	No
Did the project involve Human Embryonic Stem Cells (hESCs)?	No
Did the project on human Embryonic Stem Cells involve cells in culture?	No
Did the project on human Embryonic Stem Cells involve the derivation of cells from Embryos?	No

PRIVACY

Did the project involve processing of genetic information or personal data (eg. health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)?	No
Did the project involve tracking the location or observation of people?	No

RESEARCH ON ANIMALS

Did the project involve research on animals?	No

Were those animals transgenic small laboratory animals?	No
Were those animals transgenic farm animals?	No
Were those animals cloned farm animals?	No
Were those animals non-human primates?	No

RESEARCH INVOLVING DEVELOPING COUNTRIES

Did the project involve the use of local resources (genetic, animal, plant etc)?	No
Was the project of benefit to local community (capacity building, access to healthcare, education etc)?	No

DUAL USE

Research having direct military use	No
Research having potential for terrorist abuse	No

B. Workforce Statistics

3. Workforce statistics for the project: Please indicate in the table below the number of people who worked on the project (on a headcount basis).

Type of Position	Number of Women	Number of Men
Scientific Coordinator	0	1
Work package leaders	2	6
Experienced researchers (i.e. PhD holders)	20	30
PhD student	10	10
Other	8	5

4. How many additional researchers (in companies and universities) were recruited specifically for this project?	20
Of which, indicate the number of men:	10

C. Gender Aspects

5. Did you carry out specific Gender Equality Actions under the project ?	Yes

6. Which of the following actions did you carry out and how effective were they?	
Design and implement an equal opportunity policy	Very effective
Set targets to achieve a gender balance in the workforce	Almost effective
Organise conferences and workshops on gender	Not Applicable
Actions to improve work-life balance	Almost effective
Other:	

7. Was there a gender dimension associated with the research content - i.e. wherever people were the focus of the research as, for example, consumers, users, patients or in trials, was the issue of gender considered and addressed?	No
If yes, please specify:	

D. Synergies with Science Education

8. Did your project involve working with students and/or school pupils (e.g. open days, participation in science festivals and events, prizes/competitions or joint projects)?	Yes
If yes, please specify:	internship, lecturing

9. Did the project generate any science education material (e.g. kits, websites, explanatory booklets, DVDs)?	No

E. Interdisciplinarity

10. Which disciplines (see list below) are involved in your project?	
Main discipline:	1.4 Earth and related environmental sciences (geology, geophysics, mineralogy, physical geography and other geosciences, meteorology and other atmospheric sciences including climatic research, oceanography, vulcanology, palaeoecology, other allied sciences)
Associated discipline:	
Associated discipline:	5.2 Economics

F. Engaging with Civil society and policy makers

11a. Did your project engage with societal actors beyond the research community? (if 'No', go to Question 14)	No
11b. If yes, did you engage with citizens (citizens' panels / juries) or organised civil society (NGOs, patients' groups etc.)?	
11c. In doing so, did your project involve actors whose role is mainly to organise the dialogue with citizens and organised civil society (e.g. professional mediator; communication company, science museums)?	
12. Did you engage with government / public bodies or policy makers (including international organisations)	
13a. Will the project generate outputs (expertise or scientific advice) which could be used by policy makers?	
13b. If Yes, in which fields?	
Agriculture	
Audiovisual and Media	
Budget	
Competition	
Consumers	
Culture	
Customs	
Development Economic and Monetary Affairs	
Education, Training, Youth	
Employment and Social Affairs	
Energy	
Enlargement	
Enterprise	
Environment	
External Relations	
External Trade	
Fisheries and Maritime Affairs	
Food Safety	
Foreign and Security Policy	
Fraud	
Humanitarian aid	
Human rightsd	

Information Society	
Institutional affairs	
Internal Market	
Justice, freedom and security	
Public Health	
Regional Policy	
Research and Innovation	
Space	
Taxation	
Transport	
13c. If Yes, at which level?	

G. Use and dissemination

14. How many Articles were published/accepted for publication in peer-reviewed journals?	100
To how many of these is open access provided?	20
How many of these are published in open access journals?	20
How many of these are published in open repositories?	5
To how many of these is open access not provided?	75
Please check all applicable reasons for not providing open access:	
publisher's licensing agreement would not permit publishing in a repository	Yes
no suitable repository available	Yes
no suitable open access journal available	Yes
no funds available to publish in an open access journal	Yes
lack of time and resources	Yes
lack of information on open access	Yes
other	
If other - please specify	
15. How many new patent applications ('priority filings') have been made? ("Technologically unique": multiple applications for the same invention in different jurisdictions should be counted as just one application of grant).	0

16. Indicate how many of the following Intellectual Property Rights were applied for (give number in each box).	
Trademark	0
Registered design	0
Other	0

17. How many spin-off companies were created / are planned as a direct result of the project?	0
Indicate the approximate number of additional jobs in these companies:	0

18. Please indicate whether your project has a potential impact on employment, in comparison with the situation before your project:	Difficult to estimate / not possible to quantify, None of the above / not relevant to the project

19. For your project partnership please estimate the employment effect resulting directly from your participation in Full Time Equivalent (FTE = one person working fulltime for a year) jobs:	20

H. Media and Communication to the general public

20. As part of the project, were any of the beneficiaries professionals in communication or media relations?	No

21. As part of the project, have any beneficiaries received professional media / communication training / advice to improve communication with the general public?	No

22. Which of the following have been used to communicate information about your project to the general public, or have resulted from your project?	
Press Release	Yes
Media briefing	Yes
TV coverage / report	Yes
Radio coverage / report	No
Brochures /posters / flyers	Yes
DVD /Film /Multimedia	No
Coverage in specialist press	Yes
Coverage in general (non-specialist) press	Yes
Coverage in national press	Yes
Coverage in international press	Yes
Website for the general public / internet	Yes

Event targeting general public (festival, conference, exhibition, science café)	Yes

23. In which languages are the information products for the general public produced?	
Language of the coordinator	No
Other language(s)	Yes
English	Yes

Attachments	CC-TAME_Final Report_potential imact _121211.pdf, CCTAME_Publications_Dissemination_121211.pdf
Grant Agreement number:	212535
Project acronym:	CCTAME
Project title:	Climate Change - Terrestrial Adaption and Mitigation in Europe
Funding Scheme:	FP7-CP-FP
Project starting date:	01/06/2008
Project end date:	31/08/2011
Name of the scientific representative of the project's coordinator and organisation:	Dr. Michael Obersteiner INTERNATIONALES INSTITUT FUER ANGEWANDTE SYSTEMANALYSE
Name	
Date	12/12/2011

This declaration was visaed electronically by Susan RILEY (ECAS user name nrileysu) on 12/12/2011