Atelier ZOOM 2021

Action Collaborative Changement Climatique –
Comité Scientifique et Technique du COSTEA (CST)

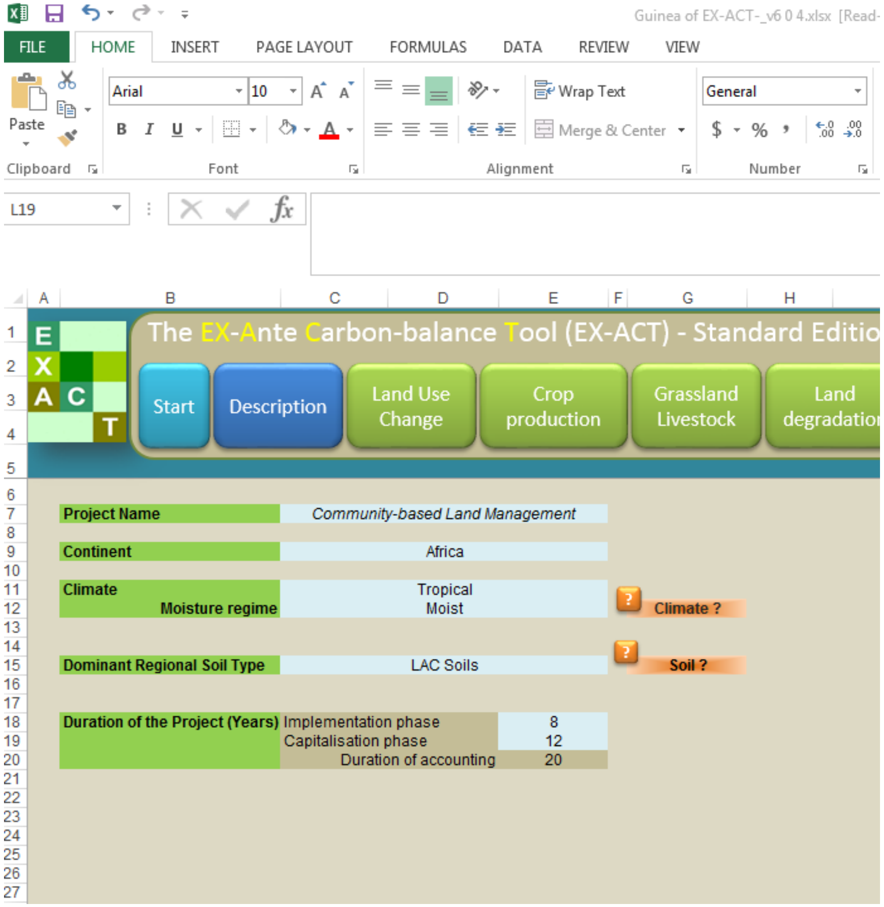
Introduction à l’outil EX-ACT

1. Introduction
2. Contexte et Historique
3. Potentiel et degré d’utilisation
4. Avantages et limites
5. Application sur projets irrigués et filieres Riz

Atelier à Distance – COSTEA 29 Avril 2021

Louis Bockel EX-ACT team leader 2009-2020

Qu’est ce qu’EX-ACT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E X A C T
The EX-Ante Carbon-balance Tool (EX-ACT) - Standard Editio
Start
Description
Land Use Change
Crop production
Grassland Livestock
Land degradatio
Climate ?
Soil ?

Project Name	*Community-based Land Management*		
Continent	Africa		
Climate	Tropical		
Moisture regime	Moist		
Dominant Regional Soil Type	LAC Soils		
Duration of the Project (Years)	Implementation phase	8	
	Capitalisation phase	12	
	Duration of accounting	20	

- Un calculateur sur Excel
- Mesurant les émissions et la séquestration des GES liés à l’implantation d’un projet

Pourquoi utiliser EX-ACT?

- Identifier les pratiques responsables des principales sources et puits de GES
- Capacité de formuler des projets et politiques agricoles en considérant activement des objectifs d’atténuation (vis-à-vis d’autre objectives)
- Fournir une méthodologie adéquate pour estimer le bilan carbone et l’intégrer comme facteur de décision dans les documents de projet

International Financial Institution Framework for a Harmonised Approach to GHG Accounting

- The International Financial Institutions (IFIs) have agreed on a harmonised approach to project-level greenhouse gas (GHG) accounting
- **IFI engaged**
  - Agence Française de développement (AfD), Asian Development Bank (ADB), European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB), Inter-American Development Bank (IDB), International Finance Corporation (IFC), KFW, NEFCO and World Bank (WB)
- **Policy Commitment**
  - All IFIs are committed to accounting for the GHG emissions of direct investment projects that they finance
  - All IFIs will state this commitment publicly in relevant policies and strategy documents

Contexte

Dans les pays en développement → **70 % du potentiel d'atténuation au niveau agricole**

L'atténuation possible à travers des changements dans les technologies agricoles et la gestion des pratiques

↘ CO_2

↘ Taux de déboisement et de degradation des forêts

↗ Adoption de pratiques agricoles améliorées *(reduction du labour, gestion de l'eau et integration des nutriments)*

↘ CH_4, N_2O

Amélioration de la production animale et gestion des effluents d'élevage,

gestion plus efficiente de l'irrigation sur le riz innondé, gestion des nutriments améliorés

↗ Séquestration du carbone

Pratiques agricoles de conservation, pratiques de gestion ameliorée des forêts, boisement et reboisement, agroforesterie, gestion améliorée des pâtures, restauration des terres dégradées

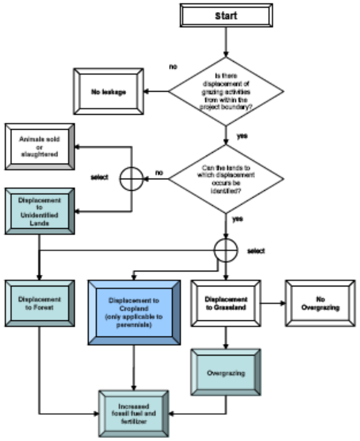
Contexte

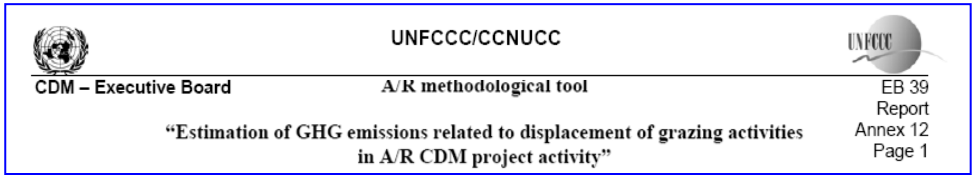
- ☞**Manque d'outils** qui aideraient les concepteurs de projets à intégrer la composante environement/CC dans les projets de développement.
- ☞**Manque d'outils opérationnels (calculateurs)**

Outils sous UNFCCC/KP

Outils
=
Organigrammes
+
Equations
+
Valeurs par défaut

Figure 1: Flow chart for estimation process


Start
Is there displacement of grazing activities from within the project boundary?
no
No leakage
yes
Can the lands to which displacement occurs be identified?
no
select
Animals sold or slaughtered
Displacement to Unidentified Lands
yes
select
Displacement to Forest
Displacement to Cropland (only applicable to perennials)
Displacement to Grassland
No Overgrazing
Overgrazing
Increased fossil fuel and fertilizer

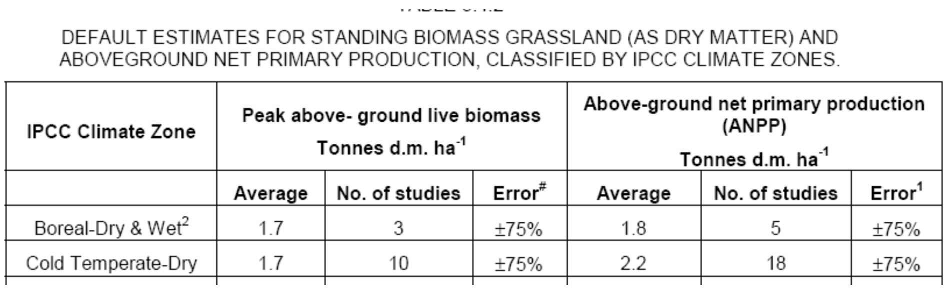


UNFCCC/CCNUCC

CDM – Executive Board | **A/R methodological tool** | EB 39 Report Annex 12 Page 1

"Estimation of GHG emissions related to displacement of grazing activities in A/R CDM project activity"

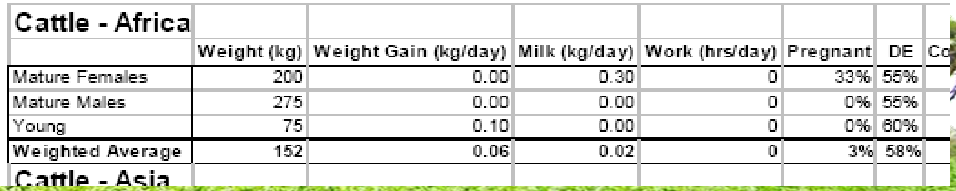
$$LK_{Perennial,t} = \sum_k Area_{Perennial,k,t} * B_{Perennial,k} * (1 + R_{Perennial,k}) * 0.5 * \frac{44}{12}$$



DEFAULT ESTIMATES FOR STANDING BIOMASS GRASSLAND (AS DRY MATTER) AND ABOVEGROUND NET PRIMARY PRODUCTION, CLASSIFIED BY IPCC CLIMATE ZONES.

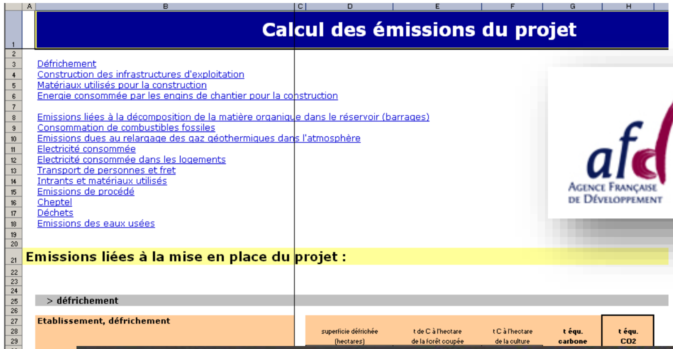
IPCC Climate Zone	Peak above- ground live biomass Tonnes d.m. ha^{-1}			Above-ground net primary production (ANPP) Tonnes d.m. ha^{-1}		
	Average	No. of studies	Error#	Average	No. of studies	Error[1]
Boreal-Dry & Wet[2]	1.7	3	±75%	1.8	5	±75%
Cold Temperate-Dry	1.7	10	±75%	2.2	18	±75%

Table 2: Data for typical cattle herds for the calculation of daily gross energy requirement



Cattle - Africa							
	Weight (kg)	Weight Gain (kg/day)	Milk (kg/day)	Work (hrs/day)	Pregnant	DE	Co
Mature Females	200	0.00	0.30	0	33%	55%	
Mature Males	275	0.00	0.00	0	0%	55%	
Young	75	0.10	0.00	0	0%	60%	
Weighted Average	152	0.06	0.02	0	3%	58%	
Cattle - Asia							

☞Manque d’outils concernant l’ensemble des secteurs agricoles et forestiers.



Calcul des émissions du projet

Défrichement
Construction des infrastructures d'exploitation
Matériaux utilisés pour la construction
Energie consommée par les engins de chantier pour la construction

Emissions liées à la décomposition de la matière organique dans le réservoir (barrages)
Consommation de combustibles fossiles
Emissions dues au relargage des gaz géothermiques dans l'atmosphère
Electricité consommée
Electricité consommée dans les logements
Transport de personnes et fret
Intrants et matériaux utilisés
Emissions de procédé
Cheptel
Déchets
Emissions des eaux usées

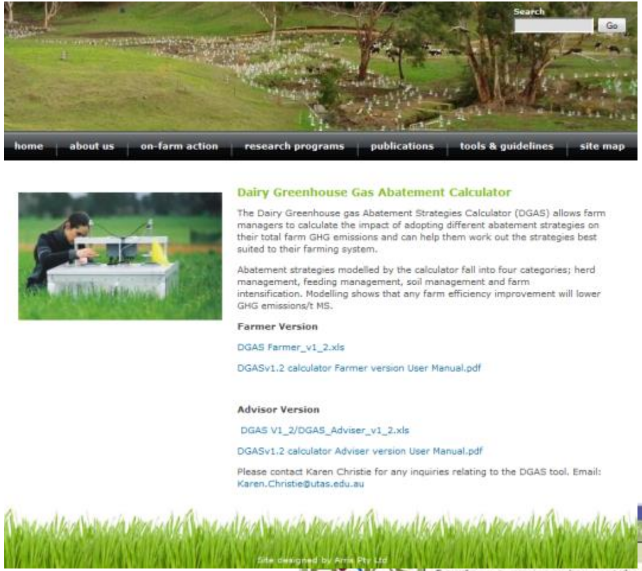
Emissions liées à la mise en place du projet :

> défrichement

Etablissement, défrichement

superficie défrichée (hectares)	t de C à l'hectare de la forêt coupée	t C à l'hectare de la culture	**t équ. carbone**	**t équ. CO2**

AGENCE FRANÇAISE DE DÉVELOPPEMENT



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publications
tools & guidelines
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Dairy Greenhouse Gas Abatement Calculator

The Dairy Greenhouse gas Abatement Strategies Calculator (DGAS) allows farm managers to calculate the impact of adopting different abatement strategies on their total farm GHG emissions and can help them work out the strategies best suited to their farming system.

Abatement strategies modelled by the calculator fall into four categories; herd management, feeding management, soil management and farm intensification. Modelling shows that any farm efficiency improvement will lower GHG emissions/t MS.

Farmer Version

DGAS Farmer_v1_2.xls

DGASv1.2 calculator Farmer version User Manual.pdf

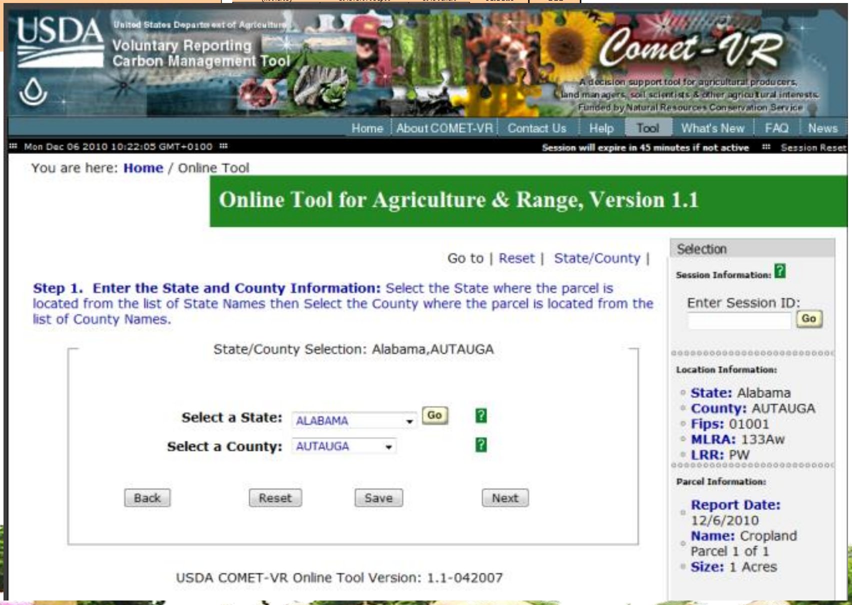
Advisor Version

DGAS V1_2/DGAS_Adviser_v1_2.xls

DGASv1.2 calculator Adviser version User Manual.pdf

Please contact Karen Christie for any inquiries relating to the DGAS tool. Email: Karen.Christie@utas.edu.au

Site designed by Arris Pty Ltd



USDA
United States Department of Agriculture
Voluntary Reporting Carbon Management Tool
Comet-VR
A decision support tool for agricultural producers, land managers, soil scientists & other agricultural interests.
Funded by Natural Resources Conservation Service
Home
About COMET-VR
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Help
Tool
What's New
FAQ
News

Mon Dec 06 2010 10:22:05 GMT+0100

Session will expire in 45 minutes if not active

Session Reset

You are here: **Home** / Online Tool

Online Tool for Agriculture & Range, Version 1.1

Go to | Reset | State/County |

Step 1. Enter the State and County Information: Select the State where the parcel is located from the list of State Names then Select the County where the parcel is located from the list of County Names.

State/County Selection: Alabama,AUTAUGA

Select a State: ALABAMA

Select a County: AUTAUGA

Go
?
Back
Reset
Save
Next

USDA COMET-VR Online Tool Version: 1.1-042007

Selection

Session Information:

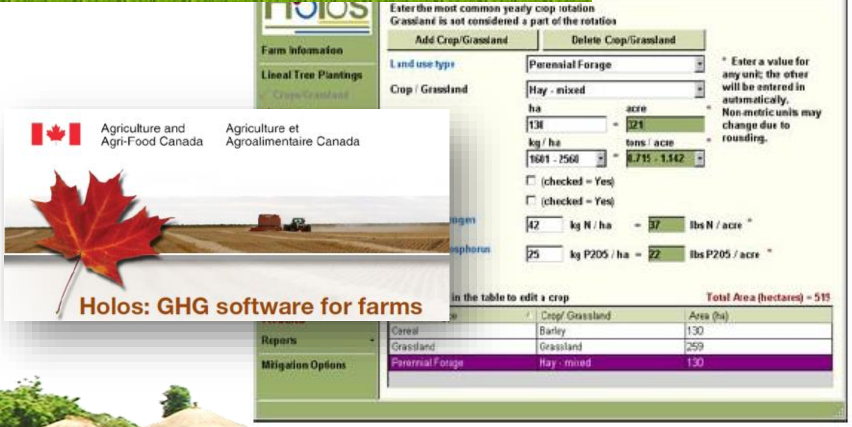
Enter Session ID:

Location Information:

- **State:** Alabama
- **County:** AUTAUGA
- **Fips:** 01001
- **MLRA:** 133Aw
- **LRR:** PW

Parcel Information:

- **Report Date:** 12/6/2010
- **Name:** Cropland Parcel 1 of 1
- **Size:** 1 Acres



Agriculture and Agri-Food Canada

Agriculture et Agroalimentaire Canada

Holos: GHG software for farms

Français | Exit
Farm Information
Lineal Tree Plantings
Crops/Grassland
Reports
Mitigation Options
Add Crop/Grassland
Delete Crop/Grassland

Enter the most common yearly crop rotation
Grassland is not considered a part of the rotation

Land use type: Perennial Forage

Crop / Grassland: Hay - mixed

ha 130 = acre 321

kg / ha 1601 - 2560 = tons / acre 0.715 - 1.142

☐ (checked = Yes)

☐ (checked = Yes)

42 kg N / ha = 37 lbs N / acre *

25 kg P205 / ha = 22 lbs P205 / acre *

* Enter a value for any unit; the other will be entered in automatically. Non-metric units may change due to rounding.

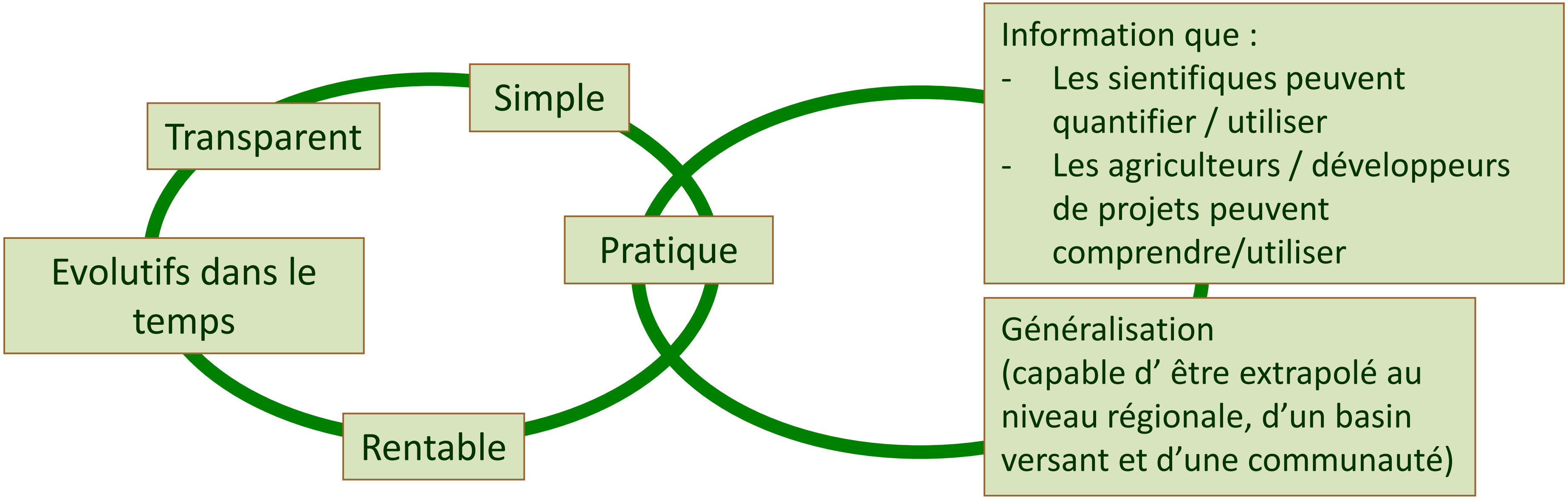
in the table to edit a crop

Total Area (hectares) = 519

	Crop/ Grassland	Area (ha)
Cereal	Barley	130
Grassland	Grassland	259
Perennial Forage	Hay - mixed	130

EX-Ante C-balance Tool (EX-ACT)

☞Besoin d’une méthode acceptable qui :
  - ☞ Mesure l’impact carbone d’une évaluation ex-ante,
  - ☞Complète les analyses économiques usuelles,
  - ☞ S’adapte aux contraintes de temps des procédés de formulation



Simple

Transparent

Pratique

Evolutifs dans le temps

Rentable

Information que :
- Les sientifiques peuvent quantifier / utiliser
- Les agriculteurs / développeurs de projets peuvent comprendre/utiliser

Généralisation
(capable d’ être extrapolé au niveau régionale, d’un basin versant et d’une communauté)

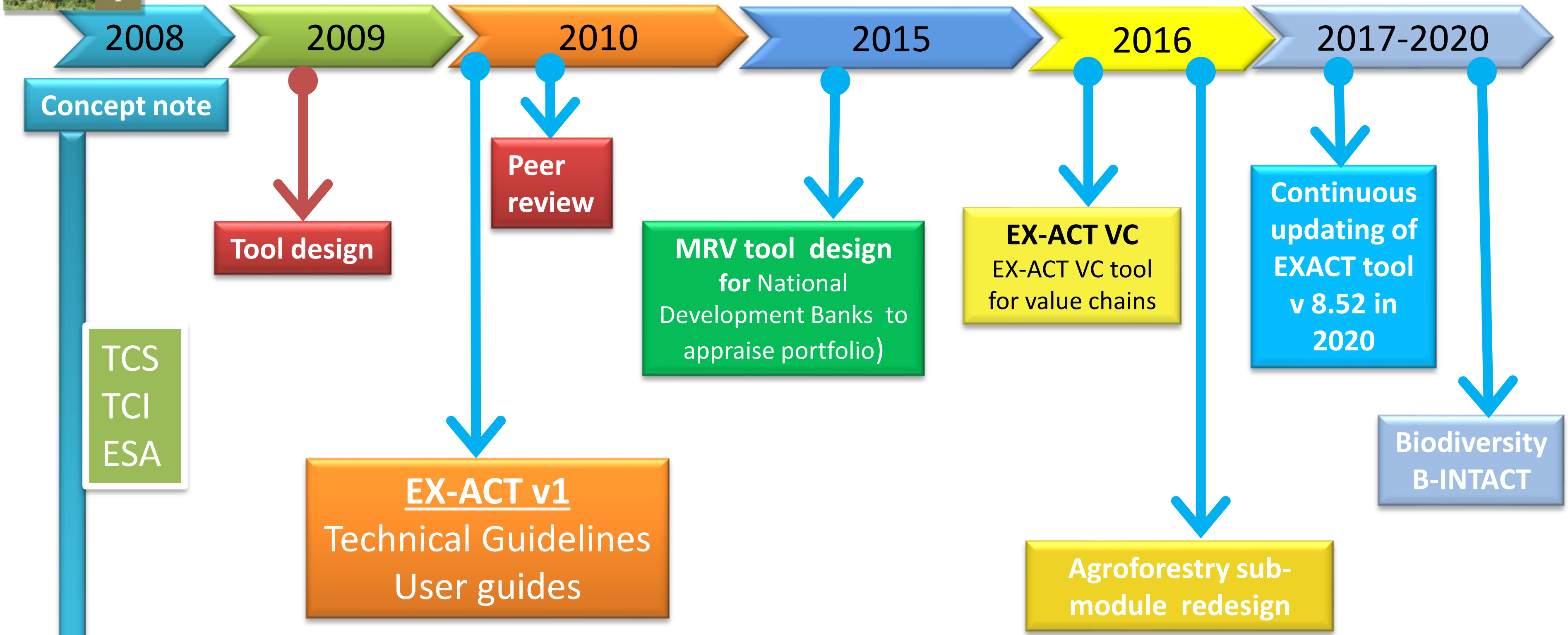
EX-Ante C-balance Tool (EX-ACT)

☞Besoin d’une méthode acceptable qui :
  - ☞ Mesure l’impact carbone d’une évaluation ex-ante,
  - ☞Complète les analyses économiques usuelles,
  - ☞ S’adapte aux contraintes de temps des procédés de formulation

Partenariats	**Partenariats externes**
FAO **Centre d’Investissement TCI** **Service de Soutien au Politique TCS** **Division économique ESA**	**IRD (Institut de Recherche et de Développement)** **Banque Mondiale** **GIZ, IFAD, AFD (France), ADB, SEI (Sweden), ADEME (France)**

EX-Ante C-balance Tool (EX-ACT)

EX-ACT Tool development timeline


2008

2009

2010

2015

2016

2017-2020

Concept note

Tool design

Peer review

TCS
TCI
ESA

EX-ACT v1
Technical Guidelines
User guides

MRV tool design for National Development Banks to appraise portfolio)

EX-ACT VC
EX-ACT VC tool for value chains

Agroforestry sub-module redesign

Continuous updating of EXACT tool v 8.52 in 2020

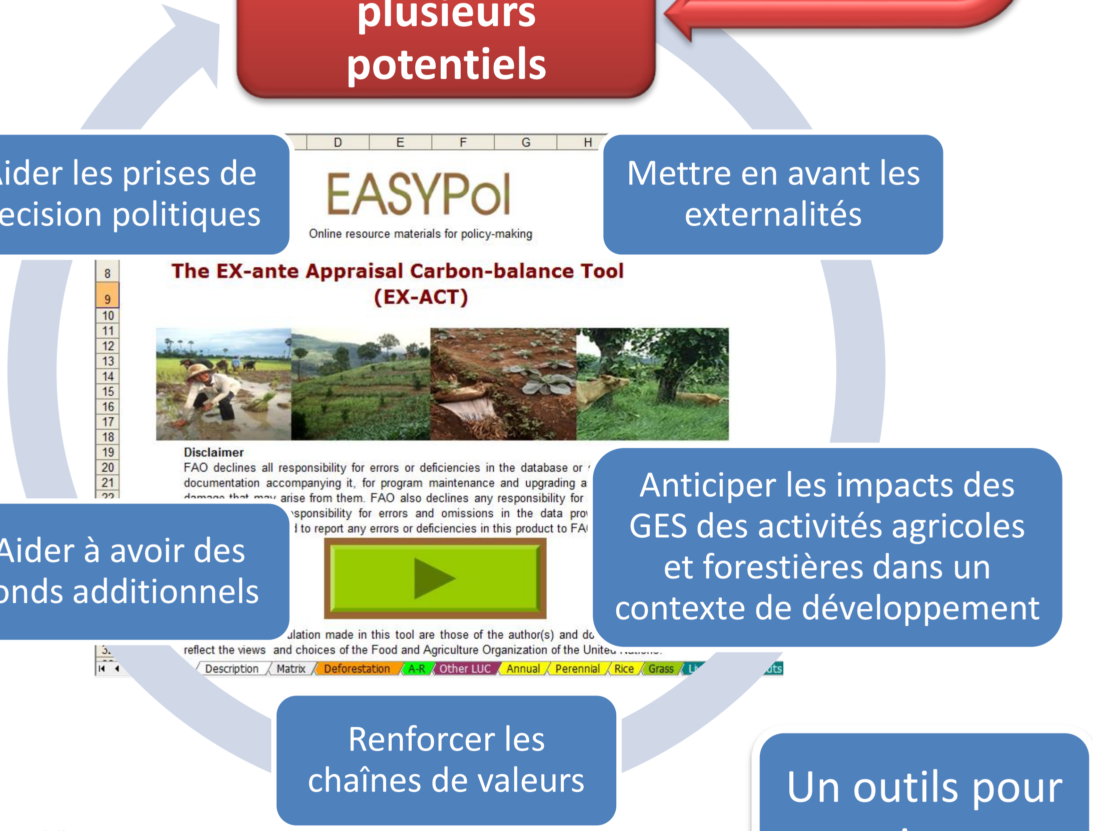
Biodiversity B-INTACT

Un outils simple qui fournit des estimations rapides ex-ante des impacts de projets de développement agricoles et forestiers sur les émissions de GES et la séquestration du carbone, mais utilisant des données déjà disponibles (rentable) avec des formulations classiques ou des évaluations de projets déjà existants.

Background/History

2008 → 2009 → 2010 → 2011-2020

Un jeu d'outils.. plusieurs potentiels



Aider les prises de decision politiques

Mettre en avant les externalités

Aider à avoir des fonds additionnels

Anticiper les impacts des GES des activités agricoles et forestières dans un contexte de développement

Renforcer les chaînes de valeurs

EASYPol

Online resource materials for policy-making

The EX-ante Appraisal Carbon-balance Tool (EX-ACT)

Disclaimer

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documentation accompanying it, for program maintenance and upgrading a
damage that may arise from them. FAO also declines any responsibility for
sponsibility for errors and omissions in the data pro
to report any errors or deficiencies in this product to FA

ulation made in this tool are those of the author(s) and do
reflect the views and choices of the Food and Agriculture Organization of the United Nations.

Un outils pour enseignants

Amplification et interaction

THE WORLD BANK

IFAD

Enabling poor rural people to overcome poverty

Climate-Smart Practices

MICCA

gef

afd

Agence Française de Développement

UN-REDD PROGRAMME

UNFCCC

OECD

Agriculture and Rural Development

Qu’est-ce qu'EX-ACT?

The EX-Ante Carbon-balance Tool (EX-ACT) - Standard Edition

Start | Description | Land Use Change | Crop production | Grassland Livestock | Land degradation | Inputs Investments

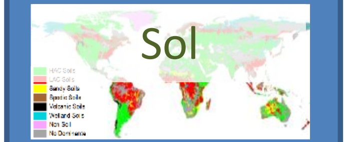
1 Description

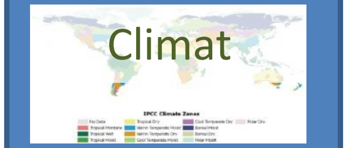
5 Catégories majeures

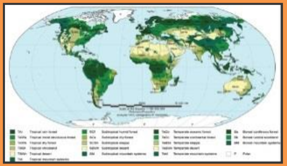
Resultats

Balance net et brut, résultats par ha et la moyenne par an

Localisation
Southern Africa
Australia and New Zealand


Sol
HAC Soils
LAC Soils
Sandy Soils
Spodic Soils
Volcanic Soils
Wetland Soils
Non Soil
No Dominance


Climat
IPCC Climate Zones
No Data
Tropical Montane
Tropical Wet
Tropical Moist
Tropical Dry
Warm Temperate Moist
Warm Temperate Dry
Cool Temperate Moist
Cool Temperate Dry
Boreal Moist
Boreal Dry
Polar Moist
Polar Dry



Zones agroécologiques par défaut, facteurs d’émissions et coefficients

2. Changement d’Usage des Terres

- **Déboisement**
- **Reboisement**
- **Autre**

3. Production végétales

- **Cultures annuelles**
- **Cultures pérennes**
- **Riz irrigués**

4. Pâtures et élevages

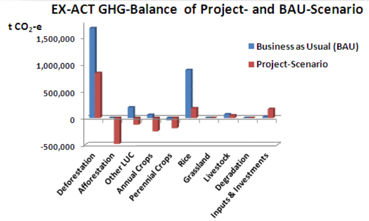
- **Pâtures**
- **élevages**

5. Dégradation

- **Forêts**
- **Sols organiques**

6. Investissements et infrastructures

- **Inputs**
- **Energy**
- **Construction**



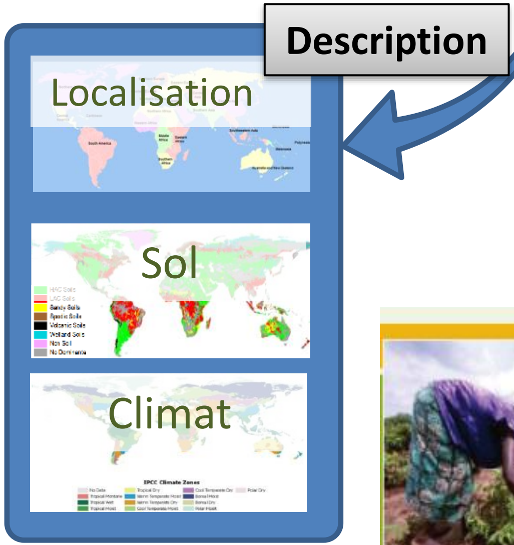
Matrice de changement

EX-Ante C-balance Tool (EX-ACT)

EX-ACT

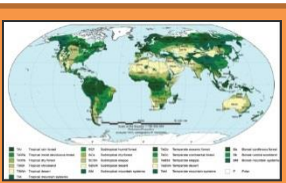
Un outil simple (dossier Excel®) et disponible

Start | Description | Land Use Change | Crop production | Grassland Livestock | Land degradation | Inputs Investments

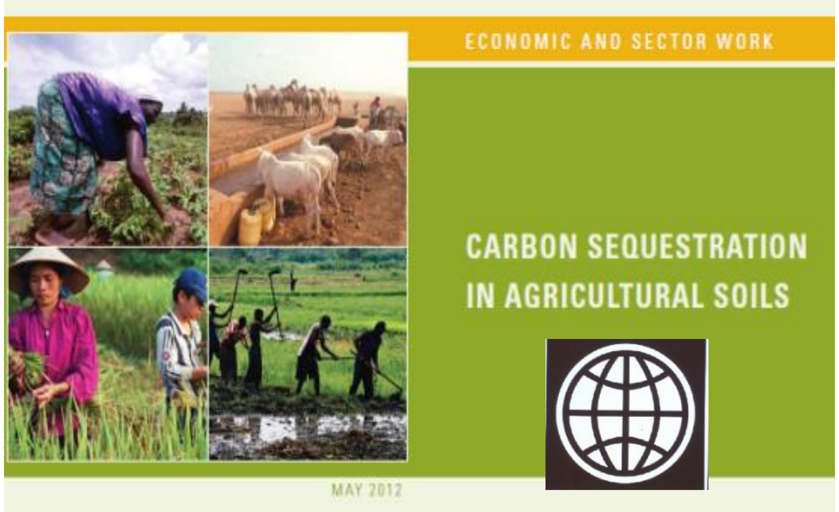

Description
Localisation
Sol
Climat

Les coefficients par défaut (approche Tier 1) sont des methodologies largement accéptées

Mais l'utilisateur peut toujours utiliser d'autres valeurs venant soit de mesures directes soit d'autres sources.



Zones agroécologiques par défaut, facteurs d'émissions et coefficients

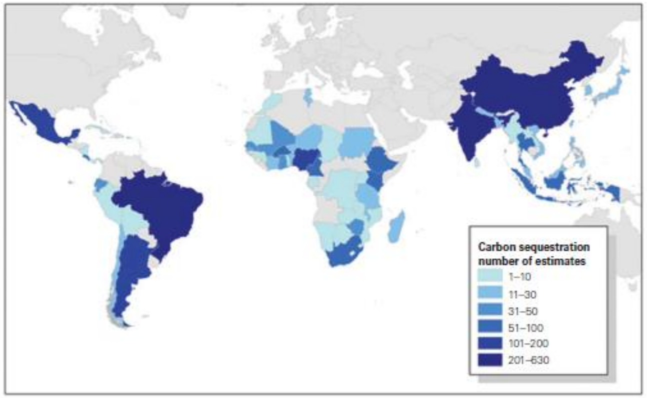


ECONOMIC AND SECTOR WORK

CARBON SEQUESTRATION IN AGRICULTURAL SOILS

MAY 2012

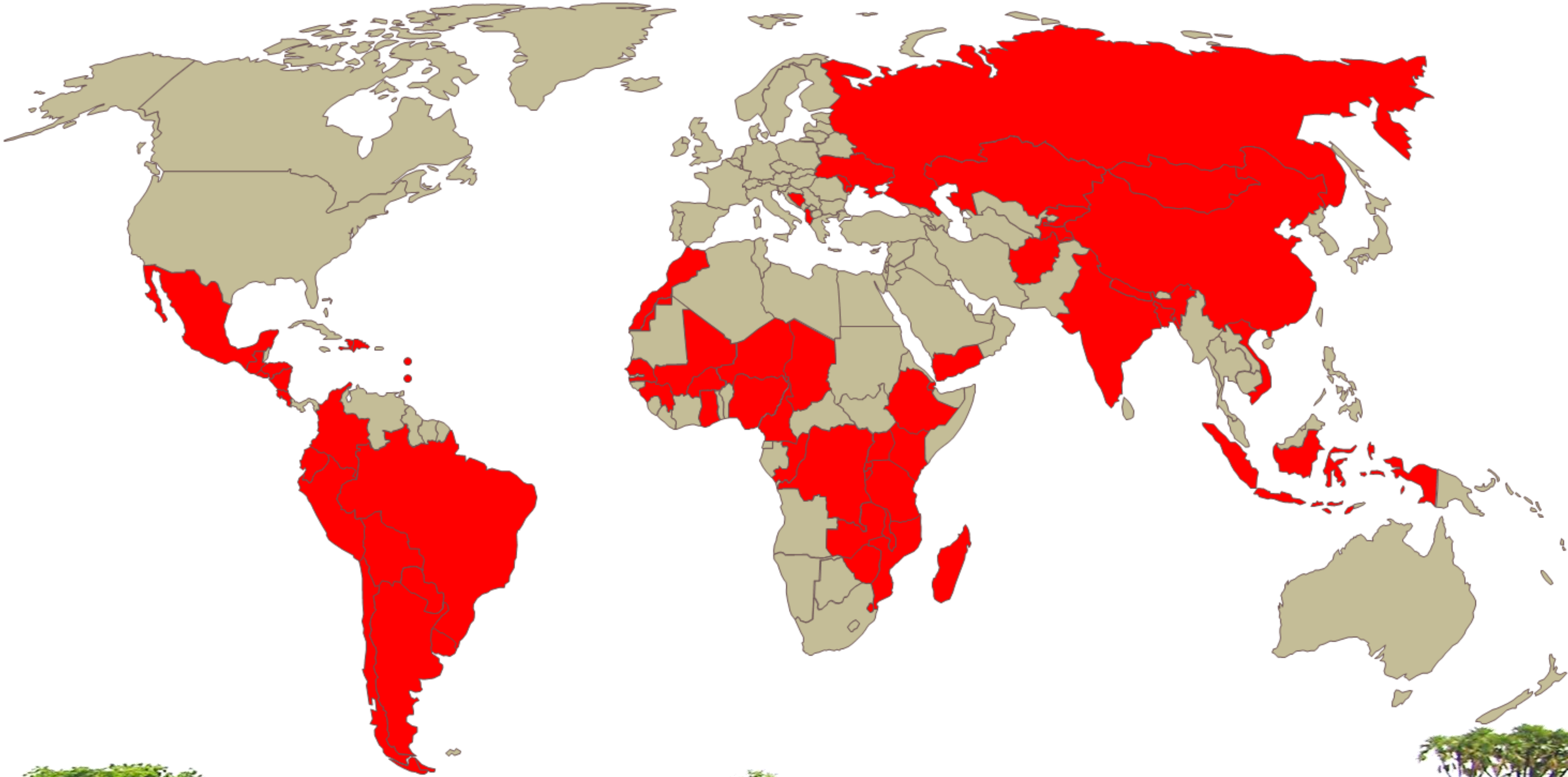
FIGURE 3.1: Geographical Distribution of Carbon Sequestration Estimates


Carbon sequestration number of estimates
1–10
11–30
31–50
51–100
101–200
201–630

EX-Ante C-balance Tool (EX-ACT)

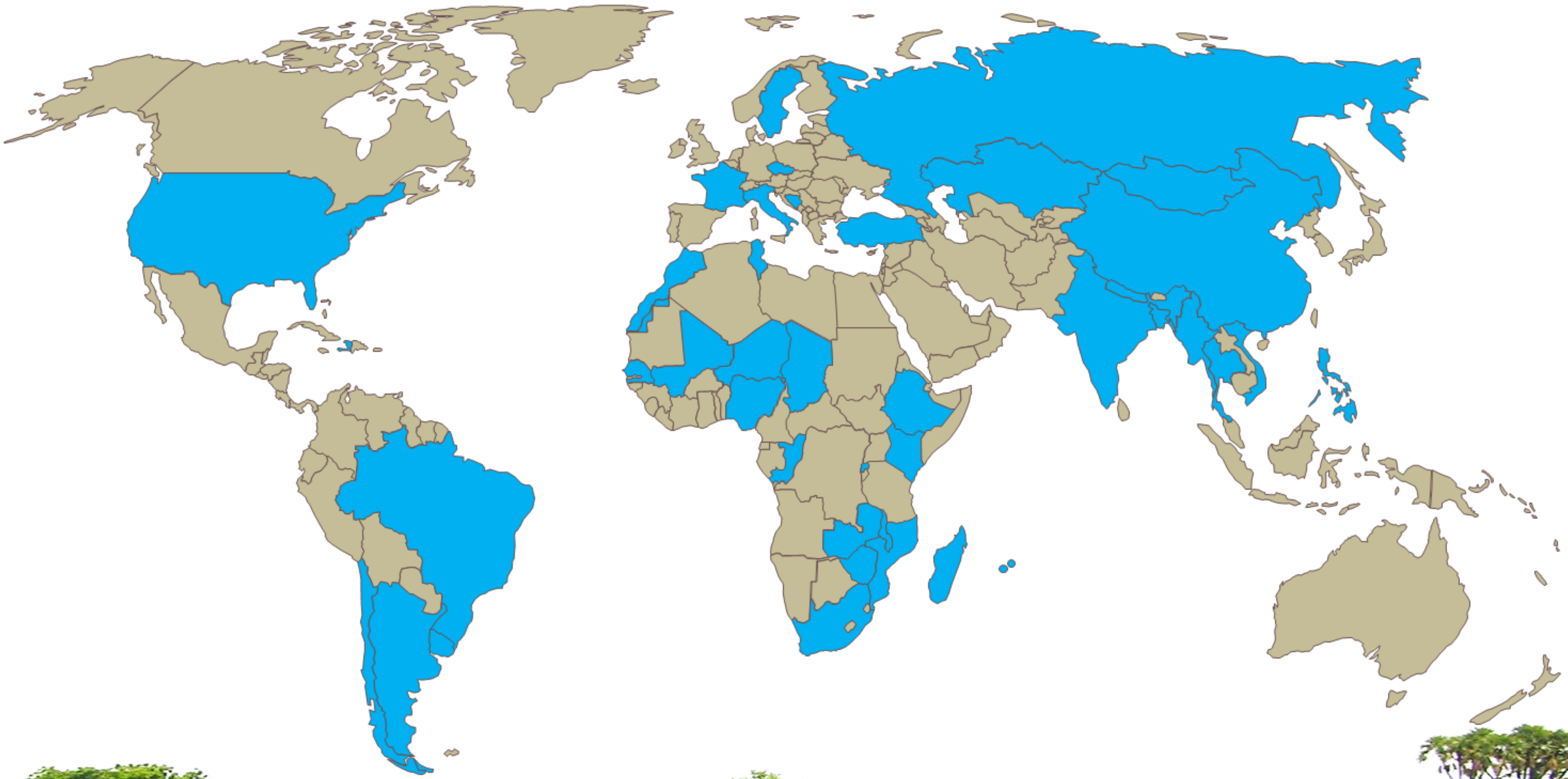
EX-ACT

Depuis 2009, EX-ACT a été utilisé dans plus de 70 pays différents



EX-Ante C-balance Tool (EX-ACT)

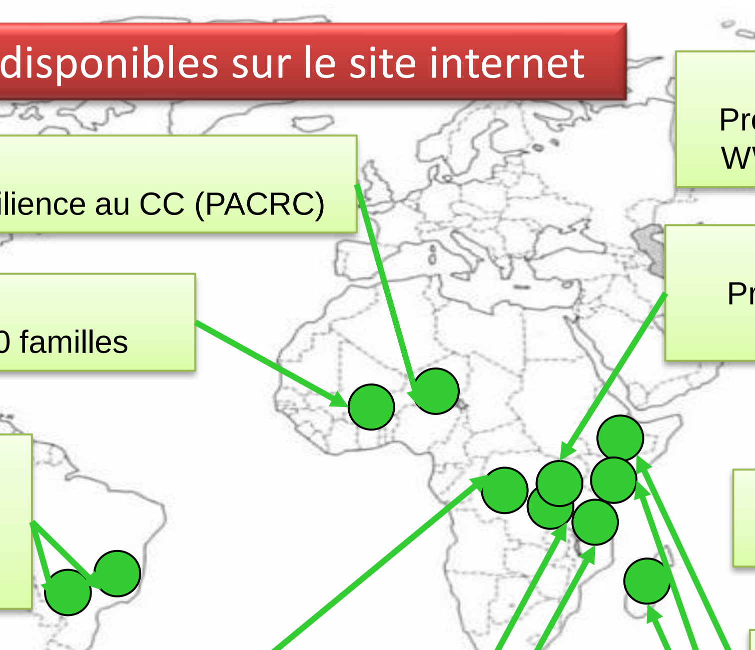
Depuis 2009, des formations EX-ACT ont eu lieu dans plus de 65 pays



EX-Ante C-balance Tool (EX-ACT)

EX-Act appliqué au niveau des pays en development et du paysage agricole.

Toutes ces études sont disponibles sur le site internet



RUSSIA
Projet de réponse aux urgences de feu de forêts
WWF Bikin Forest Conservation Project (BFCP)

NIGER
Communité prog. d'action - résilience au CC (PACRC)

UGANDA
Projet de services consultatifs technologiques (ATAAS) – 2 Mi familles

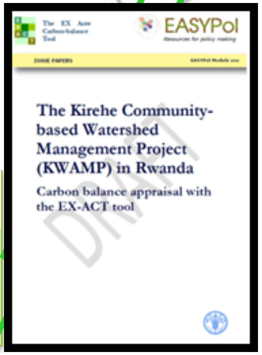
BURKINA FASO
Filière noix de cajou – 15 000 familles

BRESIL
Compétitivité rurale de Santa Catarina & Rio de Janeiro dev. rural durable

VIETNAM
Low Carbon Ag. Support Project (LCASP)

Rep. Dem. CONGO
Réhabilitation agricole et projet de rétablissement (ARRSP) – 0.1 Mi familles

ETHIOPIA
Projet de croissance agricole. (AGP) – 2 Mi fam.



The EX Ante Carbon-balance Tool

EASYPol
Resources for policy making

ISSUE PAPERS

The Kirehe Community-based Watershed Management Project (KWAMP) in Rwanda

Carbon balance appraisal with the EX-ACT tool

DRAFT

RWANDA
Land husbandry, Water harvesting and Hillside irrigation (LWH) proj. &Kirehe Community-based Watershed Management Proj. (KWAMP) – 8,000 families

KENYA
Projet de dév. Secteur laitier Afrique de l'Est. (EADD)

TANZANIA
Projet de sécurité alimentaires accélérés– 2.5 M familles

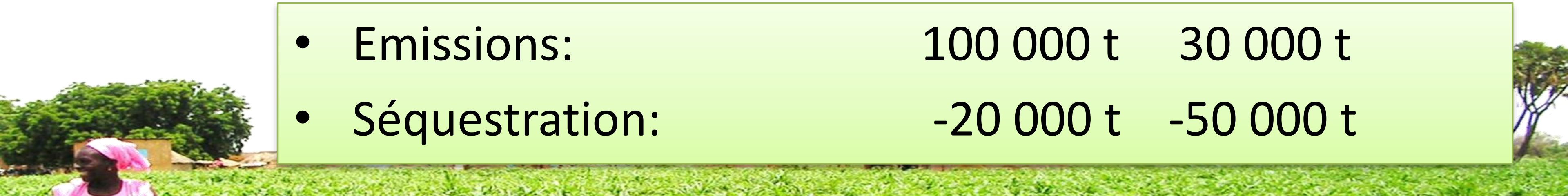
CARE Int. Hillside Projet d'agriculture de conservation (HICAP)

MADAGASCAR
4 études (140 000 petites exploitations familliales)
- Programmes d'irrigation et de gestion des baissins versant.
- Assisatance au développement à Menabe et Malaky
- Prog. de promotion des revenus ruraux
- Prog de dev. des mandrogues du bassin supérieur

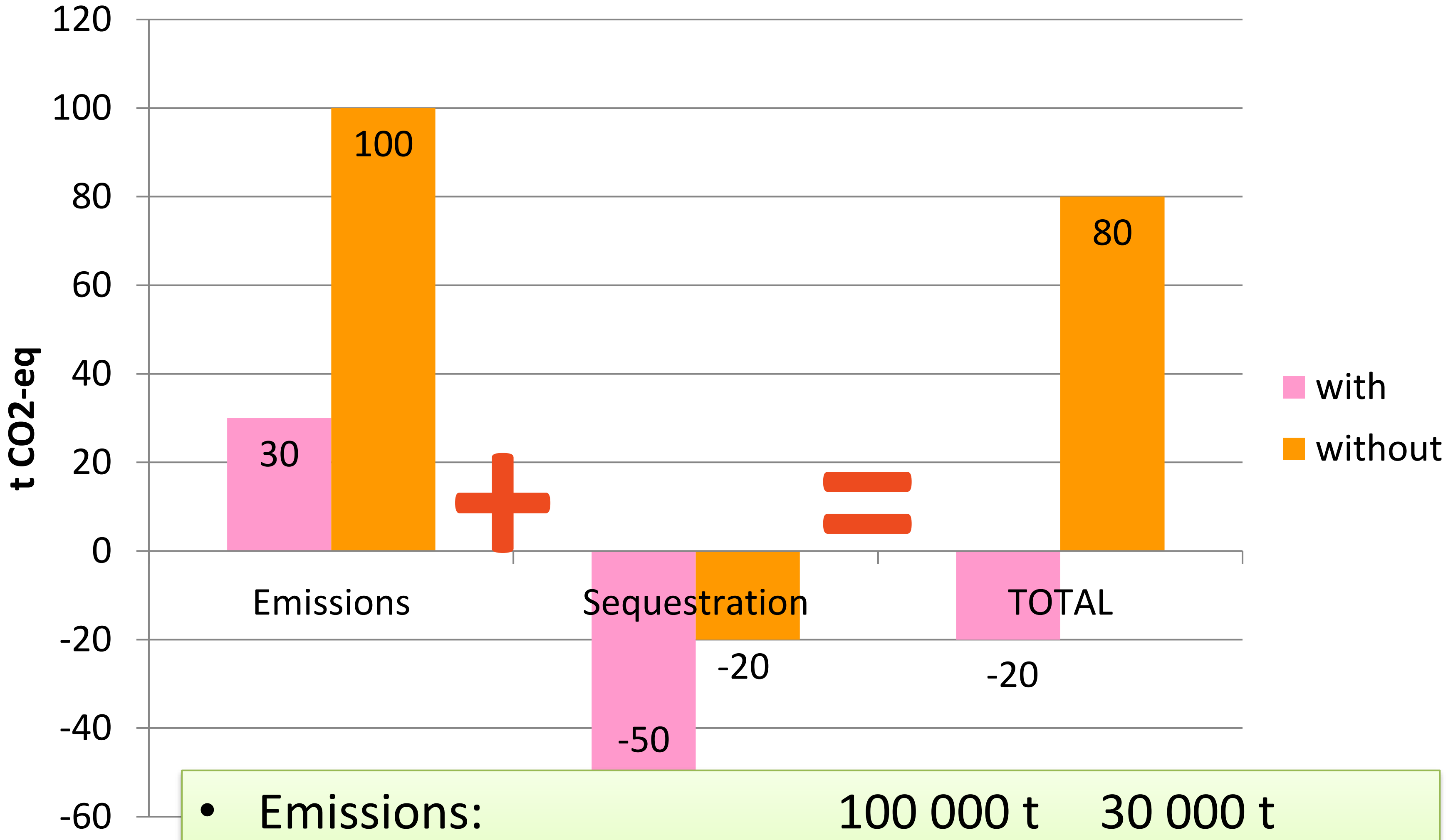
La structure et la logique d'EX-ACT: Résultats résumés

Component of the project	Gross fluxes Without	 With	 Balance
	All GHG in tCO_2eq Positive = source / negative = sink		
Land Use Changes			
Deforestation	70,000	25,000	-45,000
Afforestation	-10,000	-20,000	-10,000
Other	0	0	0
Agriculture			
Annual	10,000	-5,000	-15,000
Perennial	-10,000	-15,000	-5,000
Rice	0	0	0
Grassland & Livestocks			
Grassland	0	0	0
Livestock	15,000	5,000	-10,000
Degradation	5,000	-10,000	-15,000
Inputs & Investments	0	0	0
Total	80,000	-20,000	**-100,000**

- Emissions: 100 000 t 30 000 t
- Séquestration: -20 000 t -50 000 t



La structure et la logique d’EX-ACT: Résultats résumés

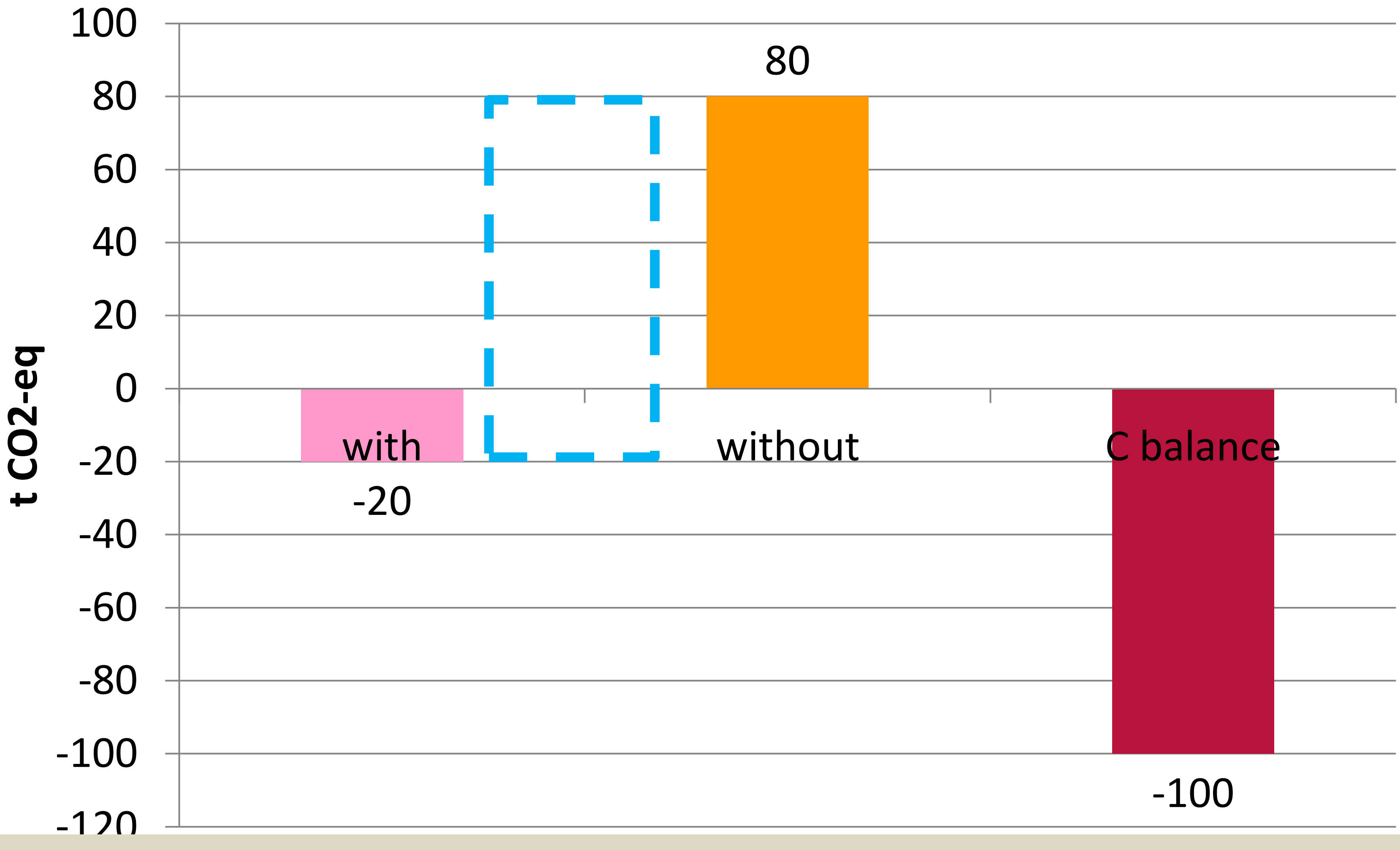


• Emissions:	100 000 t	30 000 t
• Séquestration:	-20 000 t	-50 000 t

La structure et la logique d'EX-ACT: La balance carbone

Component of the project		**Gross fluxes** **Without** **tCO_2eq**		**Gross fluxes** **With** **tCO_2eq**		**Balance**
Land Use Changes						
Deforestation		70,000		25,000		-45,000
Afforestation		-10,000		-20,000		-10,000
Other		0		0		0
Agriculture						
Annual	−	10,000	+	-5,000	=	-15,000
Perennial		-10,000		-15,000		-5,000
Rice		0		0		0
Grassland & Livestocks						
Grassland		0		0		0
Livestock		15,000		5,000		-10,000
Degradation		5,000		-10,000		-15,000
Inputs & Investments		0		0		0
Total		80,000		-20,000		**-100,000**

La structure et la logique d’EX-ACT: La balance carbone



Total	80,000	-20,000	**-100,000**

Avantages et limites de l’outil

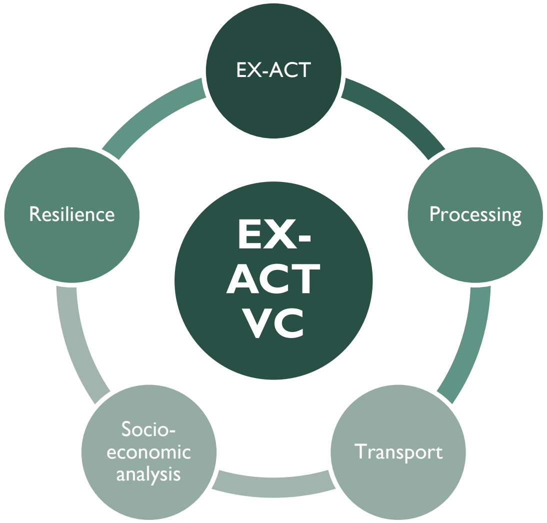
Avantages	Limites
• Un outil bien adapté pour une analyse de projets (Bilan carbone sur 20 ans) • Une analyse Globale • Mise à jour avec IPCC 2019 • Une forte diffusion auprès des bailleurs • Une facilité d’ utilisation (plus de 4000 experts formés dans près de 90 pays) • Une série d’ outils dérivés pour l analyse de filière, le MRV • Bénéficie d’un gros capital de matériel de formation en 10 langues + E learning • Volume important d’ études de cas / applications	• Ne donne pas une estimation différenciée des emissions par an • Ne permet pas de décaler les actions sur la période (actions allant de l année 3 à 5) • Difficile à utiliser sur les NDC (NDC EXpert Tool NEXT en préparation) • Pas facile sur projets GCF ou NAMA et le marché carbone • Résultats difficiles à relier aux Inventaires (futur outil NEXT en préparation)

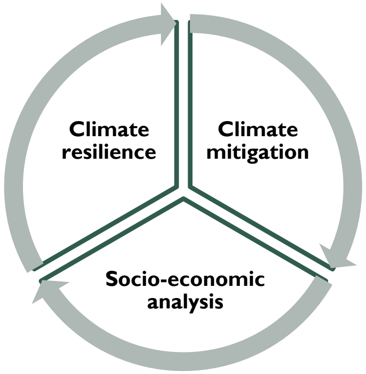
EX-ACT VALUE CHAIN

MULTI-IMPACT APPRAISAL OF GHG EMISSIONS, CLIMATE MITIGATION, RESILIENCE & INCOME GENERATED THROUGH DEVELOPMENT OF AGRICULTURAL VALUE CHAINS

What is EX-ACT VC?

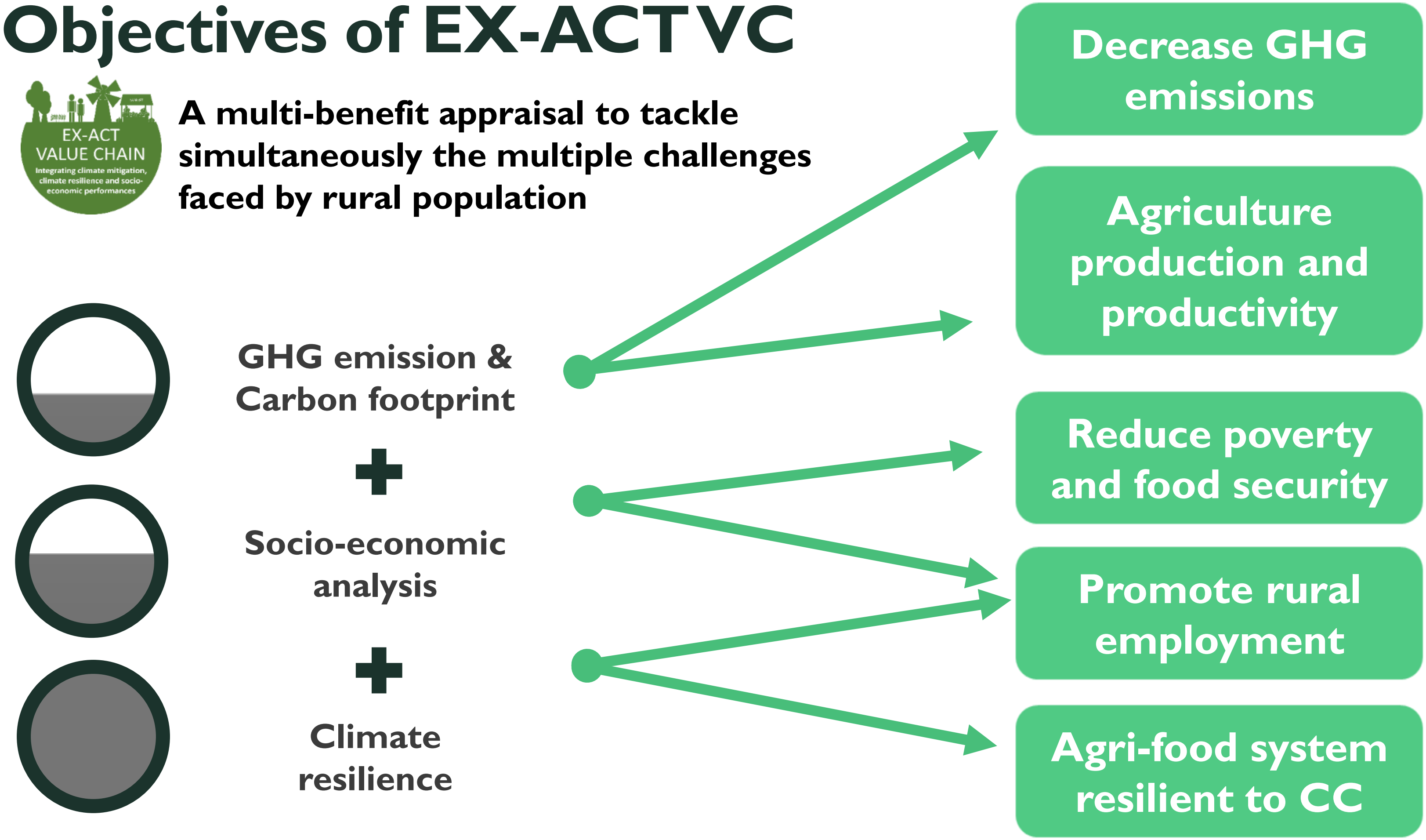
- To undertake studies on Value Chain Analysis in developing countries
- Focus on the 3 pillars of sustainability and a comprehensive analysis
- Based on EX-ACT while complementing it with post-production processes, a resilience and a socio-economic analysis
- Outputs: State of affairs of the current and upgraded value chain in terms
  - Climate mitigation
  - Climate resilience
  - Socio-economic performances


EX-ACT
Processing
Transport
Socio-economic analysis
Resilience
EX-ACT VC


Climate resilience
Climate mitigation
Socio-economic analysis

Objectives of EX-ACT VC

A multi-benefit appraisal to tackle simultaneously the multiple challenges faced by rural population



GHG emission & Carbon footprint

➕

Socio-economic analysis

➕

Climate resilience

Decrease GHG emissions

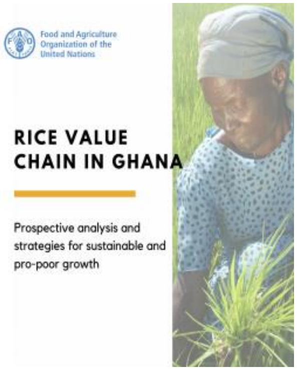
Agriculture production and productivity

Reduce poverty and food security

Promote rural employment

Agri-food system resilient to CC

APPLICATIONS de l’OUTIL EX-ACT FILIERE



Food and Agriculture Organization of the United Nations

RICE VALUE CHAIN IN GHANA

Prospective analysis and strategies for sustainable and pro-poor growth

- Analyse Filière riz sur 5 pays
- Analyse filière mais sur UEMOA
- Analyse filière cacao sur Ghana, Cote d’Ivoire, Haiti
- Filière régionale karité sur Afrique de l’Ouest
- Filière régionale cajou sur 13 pays
- Filière régionale Gomme arabique sur 10 pays

EXEMPLES DE PROJETS D’IRRIGATION ET DE FILIERES DE RIZ IRRIGUE EN ASIE DU SUD ET AFRIQUE

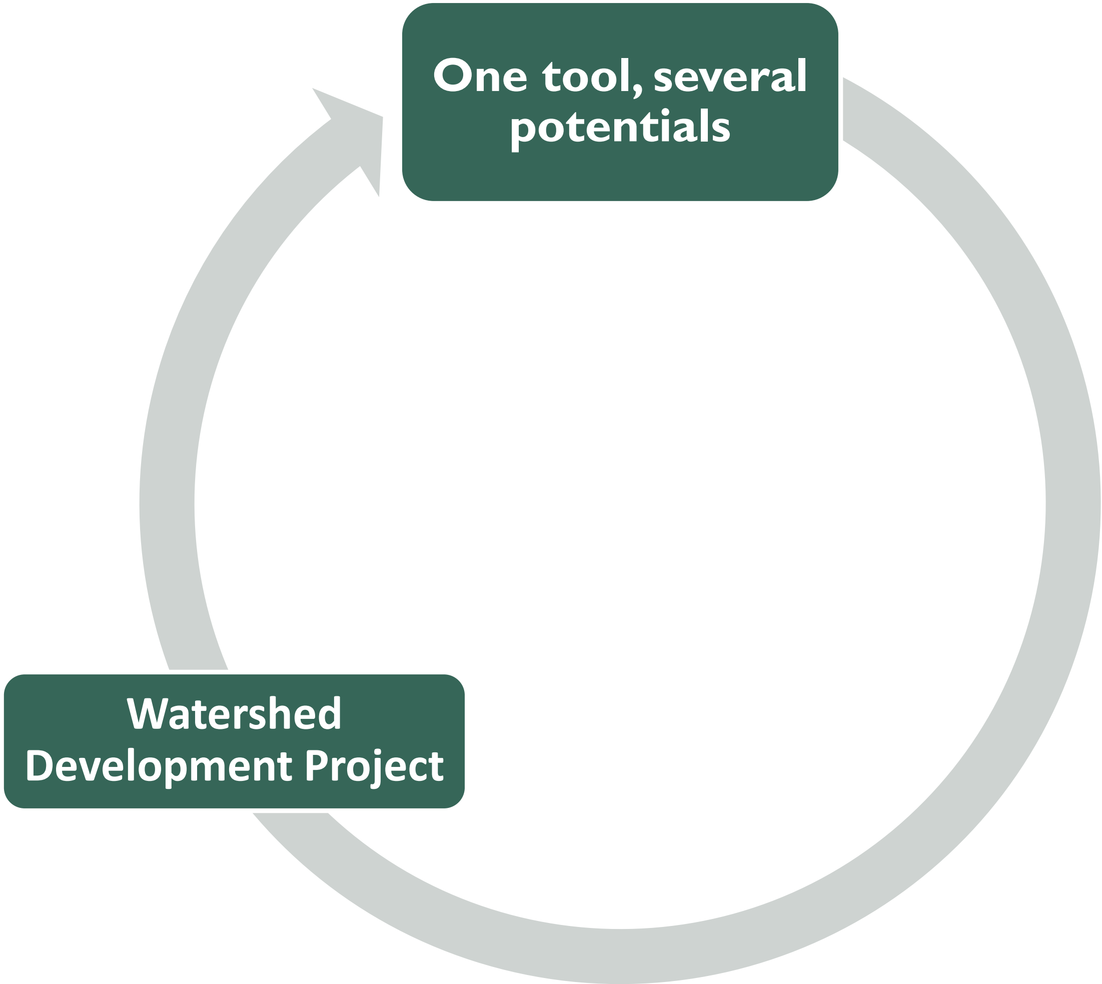
SOME EXAMPLES FROM DIVERSE COUNTRIES

EXEMPLES DE PROJETS D'IRRIGATION, EN ASIE DU SUD ET AFRIQUE
MADAGASCAR PROJET BASSINS VERSANTS BANQUE MONDIALE

Madagascar

Putting forward :

- *The mitigation benefits of healthy watersheds*
- *The role of the Carbon market*
- *Potential to generate environmental employment*



One tool, several potentials

Watershed Development Project

SOME EXAMPLES FROM DIVERSE COUNTRIES

Irrigation and watershed management programme in Madagascar

Objective: Establishing irrigated agriculture & promoting forested watersheds
Duration of carbon balance appraisal: 10+10 years

Project Carbon Balance

T Eq-CO_2	Reducing deforestation	Forestation	Agroforestry	Annual crops	Rice crops	Restoring grasslands	Inputs	Land use change	Other investments	Total
Carbon balance	**-628907**	**-989278**	-183225	-277879	-48612	-146396	91148	-188444	1463	**-2370130**
									Carbon Balance.ha^{-1}	**-21.0**

Role of Carbon Payments

Carbon price	Constant price US$/ton	Total public value million US$	Project NPV million US$	IRR
Without value			9.1	14.7%
valued at	3.5	8.3	11.6	15.8%
2010 → 2020	from 2 to 10	20.4	13.9	16.5%
2010 → 2020	from 2 to 20	30.7	[illegible]	17.7%

At low carbon price of US$ 3.5	Annual Equiv
Carbon value per ha	US$ 3.7
Carbon value per farmer	US$ 14
Equiv Carbon financial rent per village	US$ 1400
Equiv carbon financial rent per watershed	US$ 104 000

Potential **employment generation** in the area of **Paid Environmental Services (PES)** through regular monetary **inflows** from **carbon payments**

VIETNAM : MEKONG DELTA INTEGRATED CLIMATE RESILIENCE AND SUSTAINABLE LIVELIHOODS PROJECT (MD-ICRSL)

- Salinity intrusion into the delta estuary is reducing agricultural productivity and leading to dry season freshwater shortages. Tidal fluctuations drive saline intrusion more than 80km inland, affecting 40% of the Mekong Delta with more than 1 million hectares experiencing salinity concentrations above 4g/L.

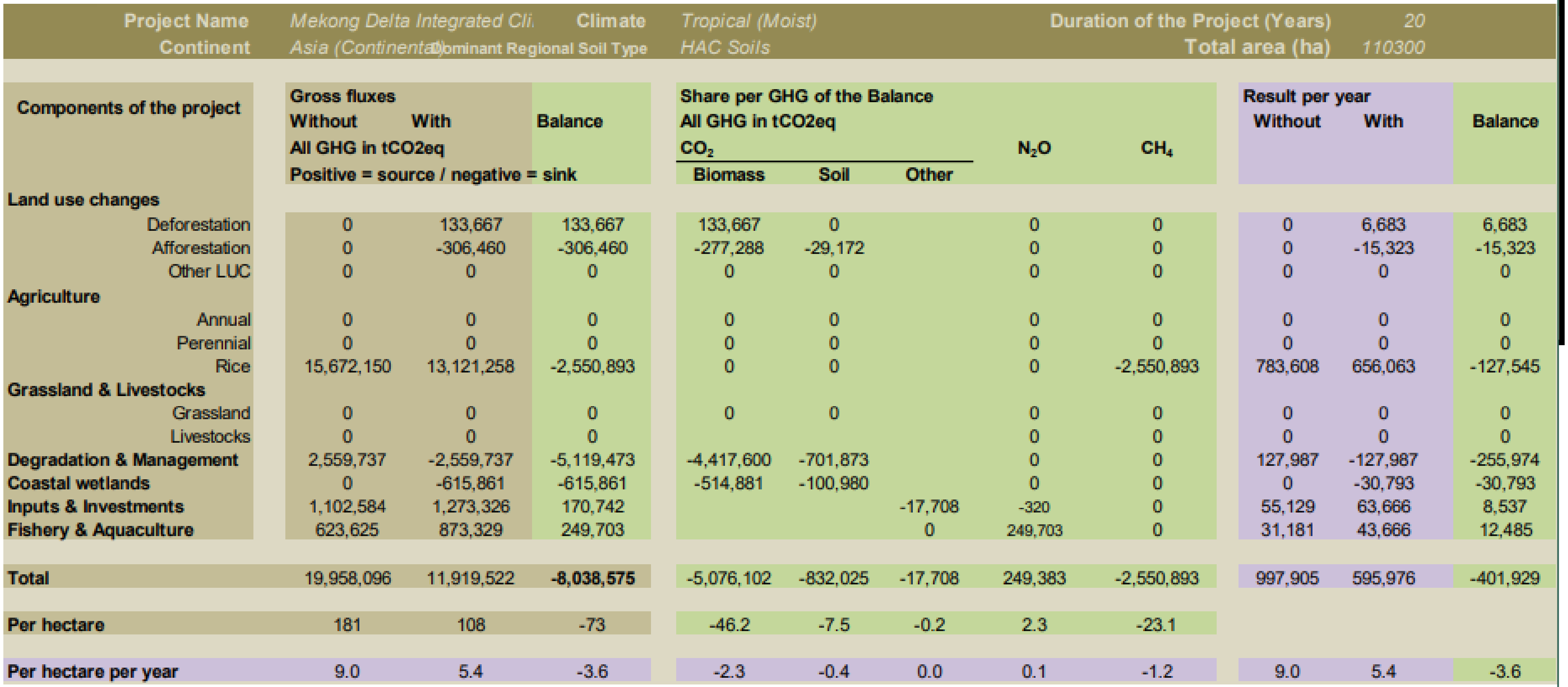
The main activities of the project are therefore

1. **Mangrove restoration**/ coastal protection- These activities aim to restore coastal landscapes to enhance resilience of inland farming systems, reduce vulnerability to the impacts of sea-level rise and coastal erosion. These would include non-structural measures, such mangrove rehabilitation and restoration.
2. **Improving water resources management** on areas that would be more suitable as fresh water zones for rice or fruit/horticulture
3. **Supporting agricultural/aquaculture systems adaptive and resilient to saline** intrusion. These activities would aim to improve sustainability of shrimp farming and promote greater rotation/diversification farming systems

VIETNAM MEKONG DELTA PROJECT : BILAN CARBONE

With a total GHG emission decreasing from 20.2 million tCO_2 to 11.6 million tCO_2, the preliminary results of GHG appraisal is estimated around 8.6 million TCO_2 of mitigation impact on 20 years, or 429 000 tCO_2 / year

The biggest impact is due to changes in mangrove forestry systems allowing increased biomass of 4.4 million tCO_2 and to methane reduction (equivalent to -2.6 million tCO_2) in irrigated rice.

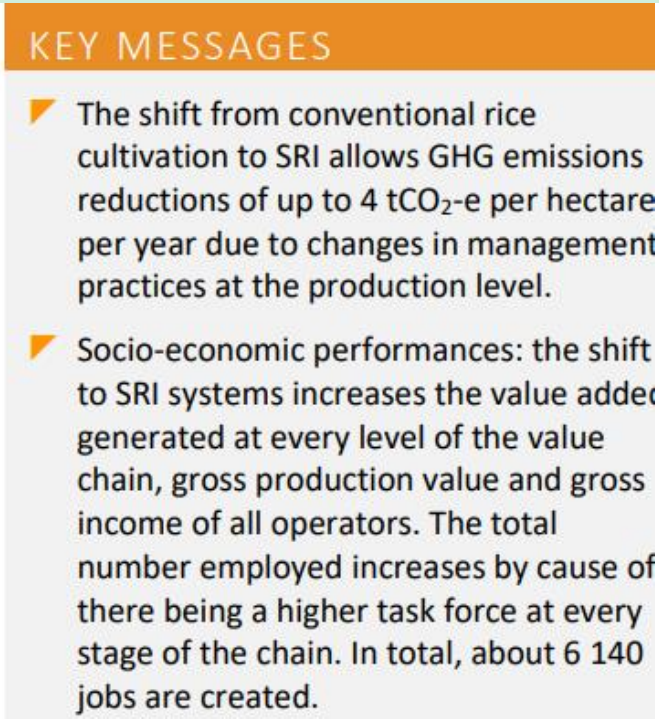


Project Name *Mekong Delta Integrated Cli.* **Climate** *Tropical (Moist)* **Duration of the Project (Years)** *20*
Continent *Asia (Continental)* **Dominant Regional Soil Type** *HAC Soils* **Total area (ha)** *110300*

Components of the project	**Gross fluxes** **Without**	 **With**	 **Balance**	**Share per GHG of the Balance** **All GHG in tCO2eq** **CO_2** **Biomass**	 **Soil**	 **Other**	**N_2O**	**CH_4**	**Result per year** **Without**	 **With**	**Balance**
	All GHG in tCO2eq **Positive = source / negative = sink**										
Land use changes											
Deforestation	0	133,667	133,667	133,667	0		0	0	0	6,683	6,683
Afforestation	0	-306,460	-306,460	-277,288	-29,172		0	0	0	-15,323	-15,323
Other LUC	0	0	0	0	0		0	0	0	0	0
Agriculture											
Annual	0	0	0	0	0		0	0	0	0	0
Perennial	0	0	0	0	0		0	0	0	0	0
Rice	15,672,150	13,121,258	-2,550,893	0	0		0	-2,550,893	783,608	656,063	-127,545
Grassland & Livestocks											
Grassland	0	0	0	0	0		0	0	0	0	0
Livestocks	0	0	0				0	0	0	0	0
Degradation & Management	2,559,737	-2,559,737	-5,119,473	-4,417,600	-701,873		0	0	127,987	-127,987	-255,974
Coastal wetlands	0	-615,861	-615,861	-514,881	-100,980		0	0	0	-30,793	-30,793
Inputs & Investments	1,102,584	1,273,326	170,742			-17,708	-320	0	55,129	63,666	8,537
Fishery & Aquaculture	623,625	873,329	249,703			0	249,703	0	31,181	43,666	12,485
Total	19,958,096	11,919,522	**-8,038,575**	-5,076,102	-832,025	-17,708	249,383	-2,550,893	997,905	595,976	-401,929
Per hectare	181	108	-73	-46.2	-7.5	-0.2	2.3	-23.1			
Per hectare per year	9.0	5.4	-3.6	-2.3	-0.4	0.0	0.1	-1.2	9.0	5.4	-3.6

PROJET FILIERE RIZ INDIA TNIAMP
HTTP://WWW.FAO.ORG/3/I8367EN/I8367EN.PDF

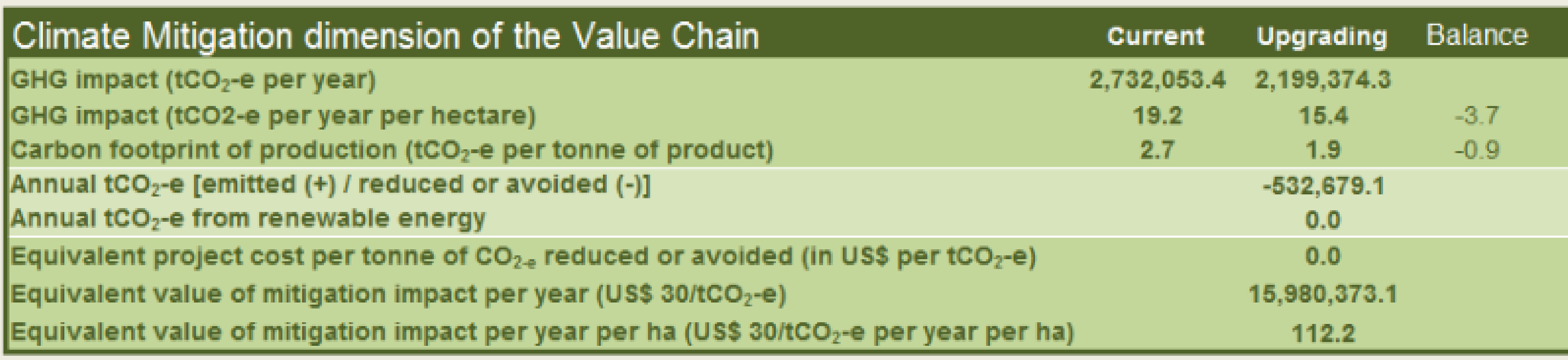
The proposed "Tamil Nadu Irrigated Agriculture Modernization Project" (TNIAMP) is a World Bank funded project that aims to enhance the productivity and resilience of irrigated agriculture and increase value-added in Tamil Nadu. Planned from 2017 to 2027, the project focuses on increasing crop productivity and water-use efficiency, introducing crop and income diversification into non-paddy production systems and value-addition activities, as well as promoting climate-resilient farming practices and technologies



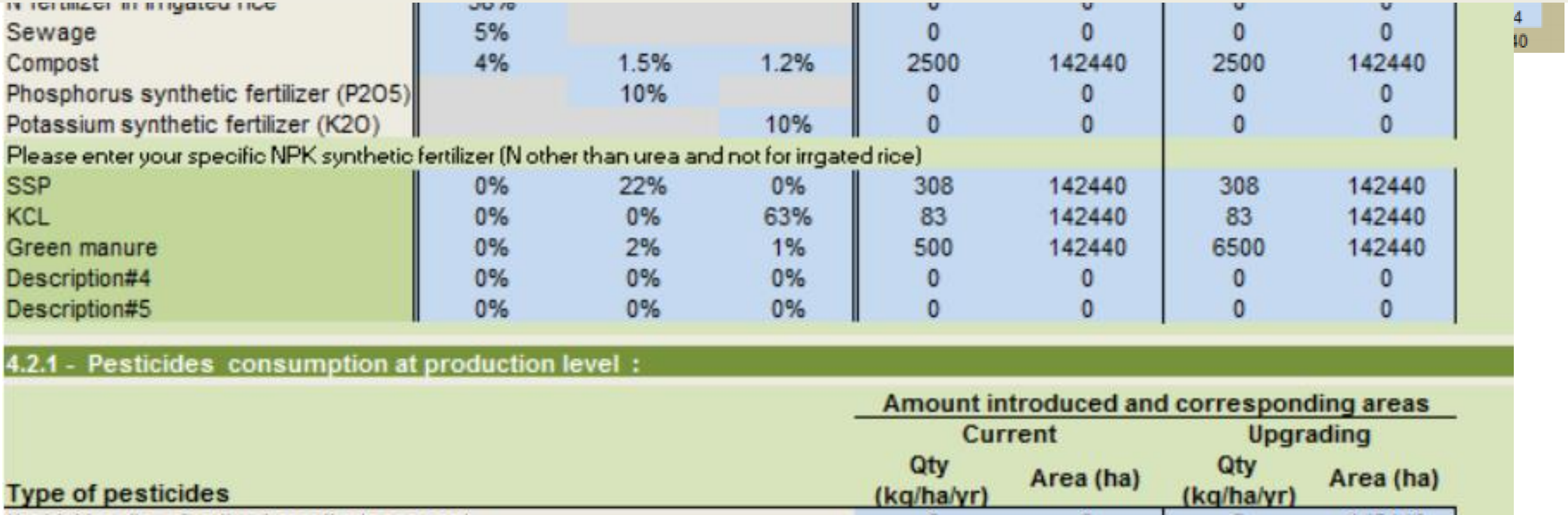
KEY MESSAGES

- The shift from conventional rice cultivation to SRI allows GHG emissions reductions of up to 4 tCO_2-e per hectare per year due to changes in management practices at the production level.
- Socio-economic performances: the shift to SRI systems increases the value added generated at every level of the value chain, gross production value and gross income of all operators. The total number employed increases by cause of there being a higher task force at every stage of the chain. In total, about 6 140 jobs are created.

Figure 4. Details of the climate mitigation dimension of the value chain



Climate Mitigation dimension of the Value Chain	Current	Upgrading	Balance
GHG impact (tCO_2-e per year)	2,732,053.4	2,199,374.3	
GHG impact (tCO2-e per year per hectare)	19.2	15.4	-3.7
Carbon footprint of production (tCO_2-e per tonne of product)	2.7	1.9	-0.9
Annual tCO_2-e [emitted (+) / reduced or avoided (-)]		-532,679.1	
Annual tCO_2-e from renewable energy		0.0	
Equivalent project cost per tonne of $CO_{2\text{-e}}$ reduced or avoided (in US$ per tCO_2-e)		0.0	
Equivalent value of mitigation impact per year (US$ 30/tCO_2-e)		15,980,373.1	
Equivalent value of mitigation impact per year per ha (US$ 30/tCO_2-e per year per ha)		112.2	

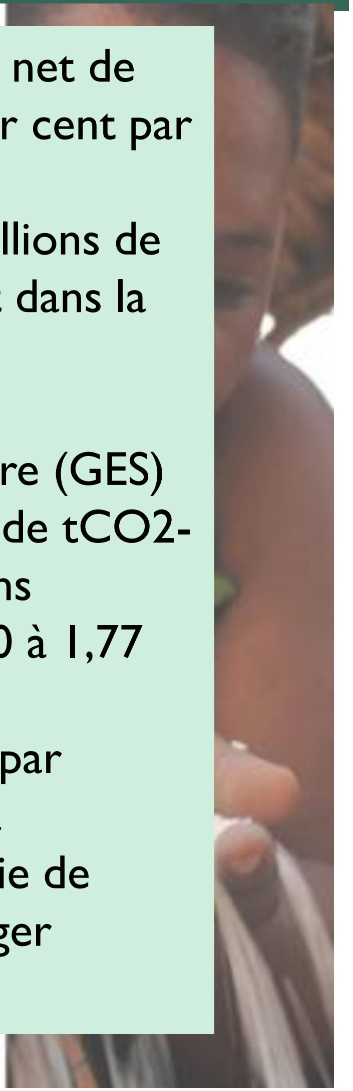


Sewage	5%			0	0	0	0
Compost	4%	1.5%	1.2%	2500	142440	2500	142440
Phosphorus synthetic fertilizer (P2O5)		10%		0	0	0	0
Potassium synthetic fertilizer (K2O)			10%	0	0	0	0
Please enter your specific NPK synthetic fertilizer (N other than urea and not for irrgated rice)							
SSP	0%	22%	0%	308	142440	308	142440
KCL	0%	0%	63%	83	142440	83	142440
Green manure	0%	2%	1%	500	142440	6500	142440
Description#4	0%	0%	0%	0	0	0	0
Description#5	0%	0%	0%	0	0	0	0

4.2.1 - Pesticides consumption at production level :

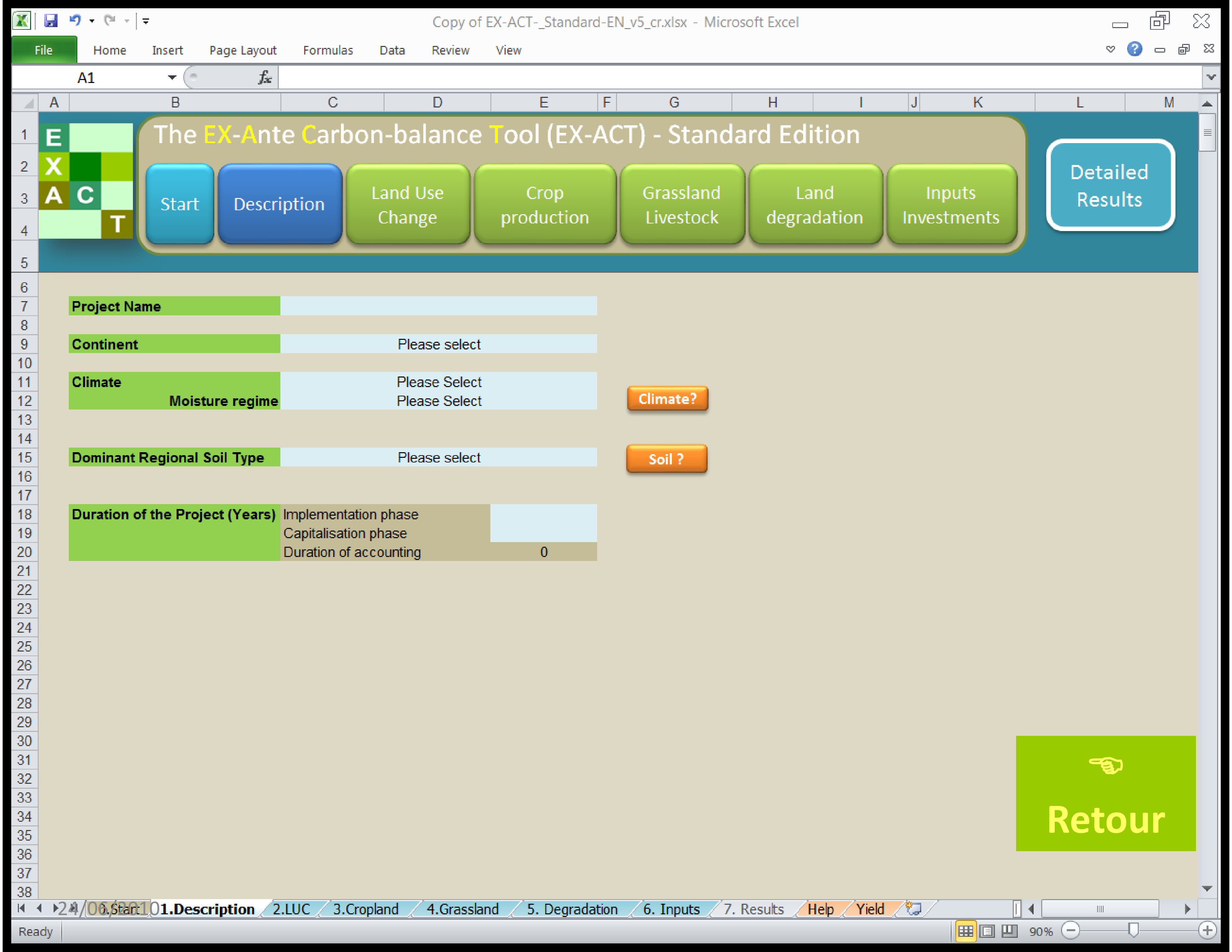
	Amount introduced and corresponding areas			
	Current		Upgrading	
Type of pesticides	Qty (kg/ha/yr)	Area (ha)	Qty (kg/ha/yr)	Area (ha)

EXEMPLES DE PROJETS D'IRRIGATION, EN ASIE DU SUD ET AFRIQUE MALI HTTP://WWW.FAO.ORG/3/CB1504FR/CB1504FR.PDF



Les résultats indiquent que le Mali peut être auto-suffisant et exportateur net de riz à l'horizon 2030 si la production croît à un rythme d'au moins 6,6 pour cent par an pendant 10 ans passant de 2,8 à 5,5 millions de tonnes.
Ceci permet la la création d'une valeur ajoutée supplémentaire de 602 millions de dollar en dix ans, soit une croissance annuelle moyenne de 7,15 pour cent dans la filière.

En termes d'impact environnemental, lLes émissions de Gaz à Effet de Serre (GES) passeront de 7 millions à 4,8 millions de tCO2-e soit près de 2,2 millions de tCO2-e séquestrés. L'évaluation de l'empreinte carbone montre que les émissions diminuent de 6,4 à 4,1 tCO2-e par tonne de riz obtenu ou encore de 4,30 à 1,77 tCO2-e par hectare de périmètre rizicole. La valeur monétaire de ce gain environnemental est estimée à 66,4 millions de dollars US, soit 66,5 USD par hectare et par an. Cette évaluation monétaire pourrait être utilisée dansla recherche des fonds verts climat ou pour le développement d'une stratégie de payement des services environnementaux aux producteurs pour encourager l'adoption des pratiques intelligentes face au climat.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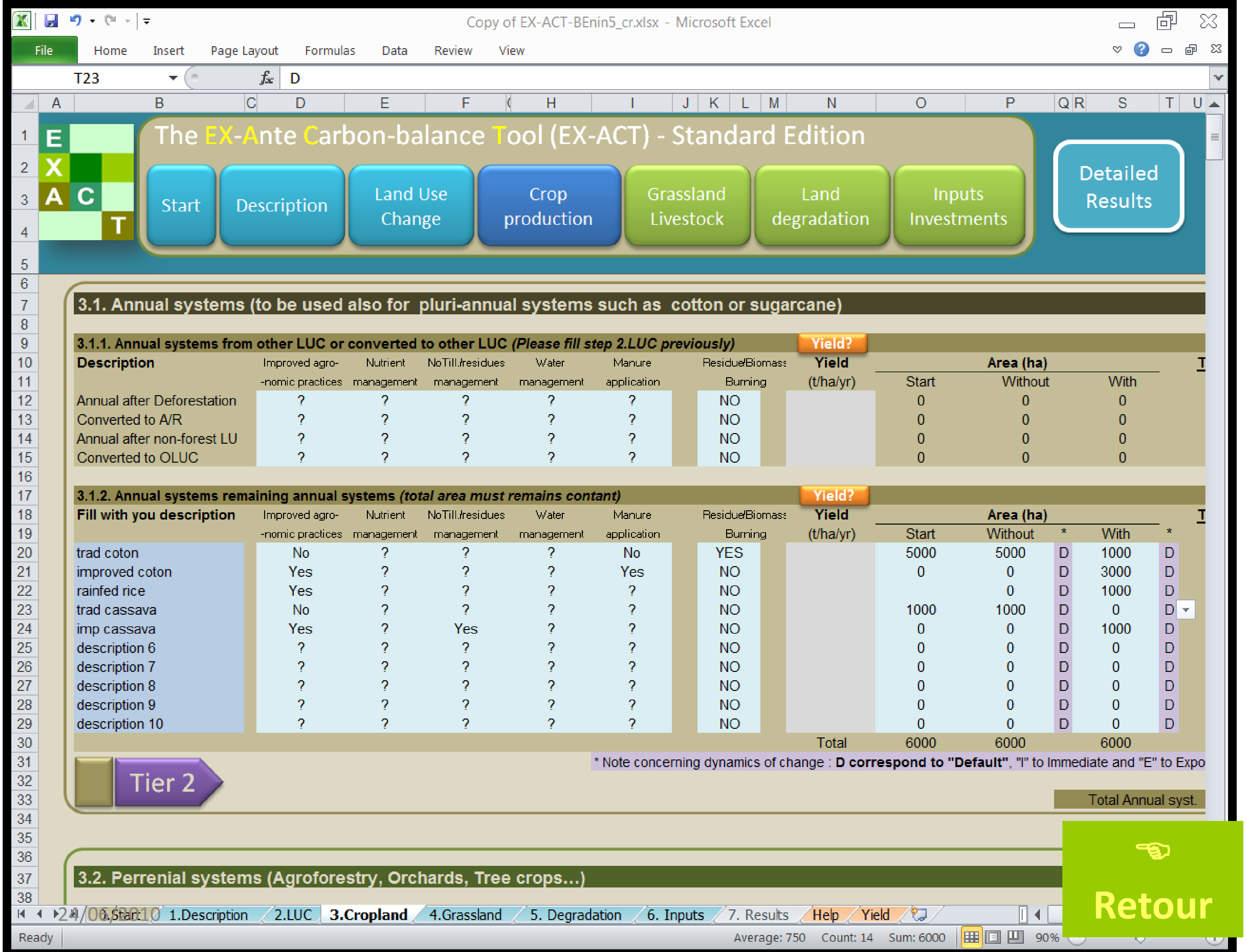
Description
Land Use Change
Crop production
Grassland Livestock
Land degradation
Inputs Investments
Detailed Results
Climate?
Soil ?
Retour
0.Start
1.Description
2.LUC
3.Cropland
4.Grassland
5. Degradation
6. Inputs
7. Results
Help
Yield
Ready
90%

The EX-Ante Carbon-balance Tool (EX-ACT) - Standard Edition

Project Name		
Continent	Please select	
Climate	Please Select	
Moisture regime	Please Select	
Dominant Regional Soil Type	Please select	
Duration of the Project (Years)	Implementation phase	
	Capitalisation phase	
	Duration of accounting	0

24/06/2010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The EX-Ante Carbon-balance Tool (EX-ACT) - Standard Edition

E X A C T
Start
Description
Land Use Change
Crop production
Grassland Livestock
Land degradation
Inputs Investments
Detailed Results

3.1. Annual systems (to be used also for pluri-annual systems such as cotton or sugarcane)

3.1.1. Annual systems from other LUC or converted to other LUC *(Please fill step 2.LUC previously)*

Yield?

Description	Improved agro- -nomic practices	Nutrient management	NoTill./residues management	Water management	Manure application	Residue/Biomass Burning	Yield (t/ha/yr)	Area (ha) Start	Area (ha) Without	Area (ha) With
Annual after Deforestation	?	?	?	?	?	NO		0	0	0
Converted to A/R	?	?	?	?	?	NO		0	0	0
Annual after non-forest LU	?	?	?	?	?	NO		0	0	0
Converted to OLUC	?	?	?	?	?	NO		0	0	0

3.1.2. Annual systems remaining annual systems *(total area must remains contant)*

Fill with you description	Improved agro- -nomic practices	Nutrient management	NoTill./residues management	Water management	Manure application	Residue/Biomass Burning	Yield (t/ha/yr)	Area (ha) Start	Area (ha) Without	*	Area (ha) With	*
trad coton	No	?	?	?	No	YES		5000	5000	D	1000	D
improved coton	Yes	?	?	?	Yes	NO		0	0	D	3000	D
rainfed rice	Yes	?	?	?	?	NO			0	D	1000	D
trad cassava	No	?	?	?	?	NO		1000	1000	D	0	D
imp cassava	Yes	?	Yes	?	?	NO		0	0	D	1000	D
description 6	?	?	?	?	?	NO		0	0	D	0	D
description 7	?	?	?	?	?	NO		0	0	D	0	D
description 8	?	?	?	?	?	NO		0	0	D	0	D
description 9	?	?	?	?	?	NO		0	0	D	0	D
description 10	?	?	?	?	?	NO		0	0	D	0	D
							Total	6000	6000		6000	

* Note concerning dynamics of change : **D correspond to "Default"**, "I" to Immediate and "E" to Expo

Total Annual syst.

3.2. Perrenial systems (Agroforestry, Orchards, Tree crops...)

0.Start
1.Description
2.LUC
3.Cropland
4.Grassland
5. Degradation
6. Inputs
7. Results
Help
Yield
Ready
Average: 750
Count: 14
Sum: 6000
90%

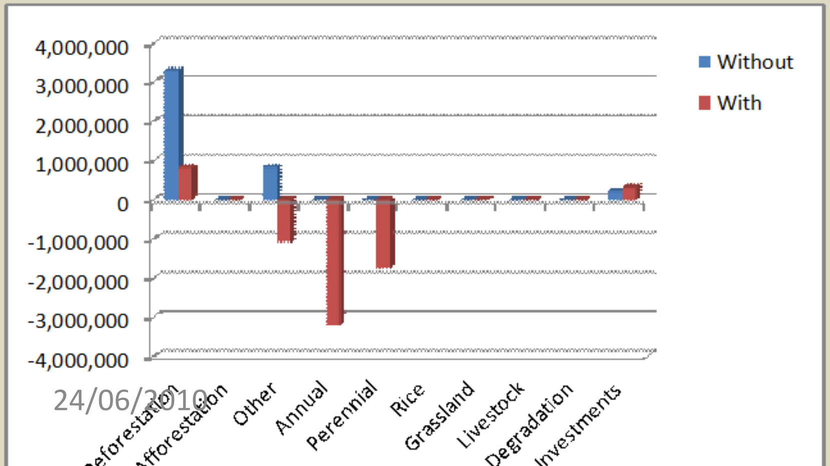
24/06/2010

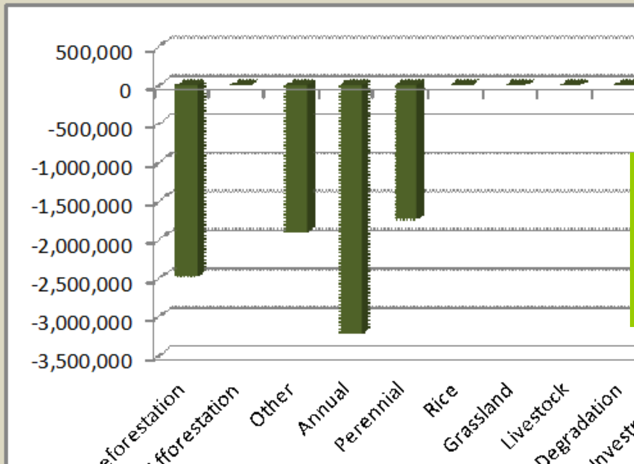
Retour

EX-Ante C-balance Tool (EX-ACT)

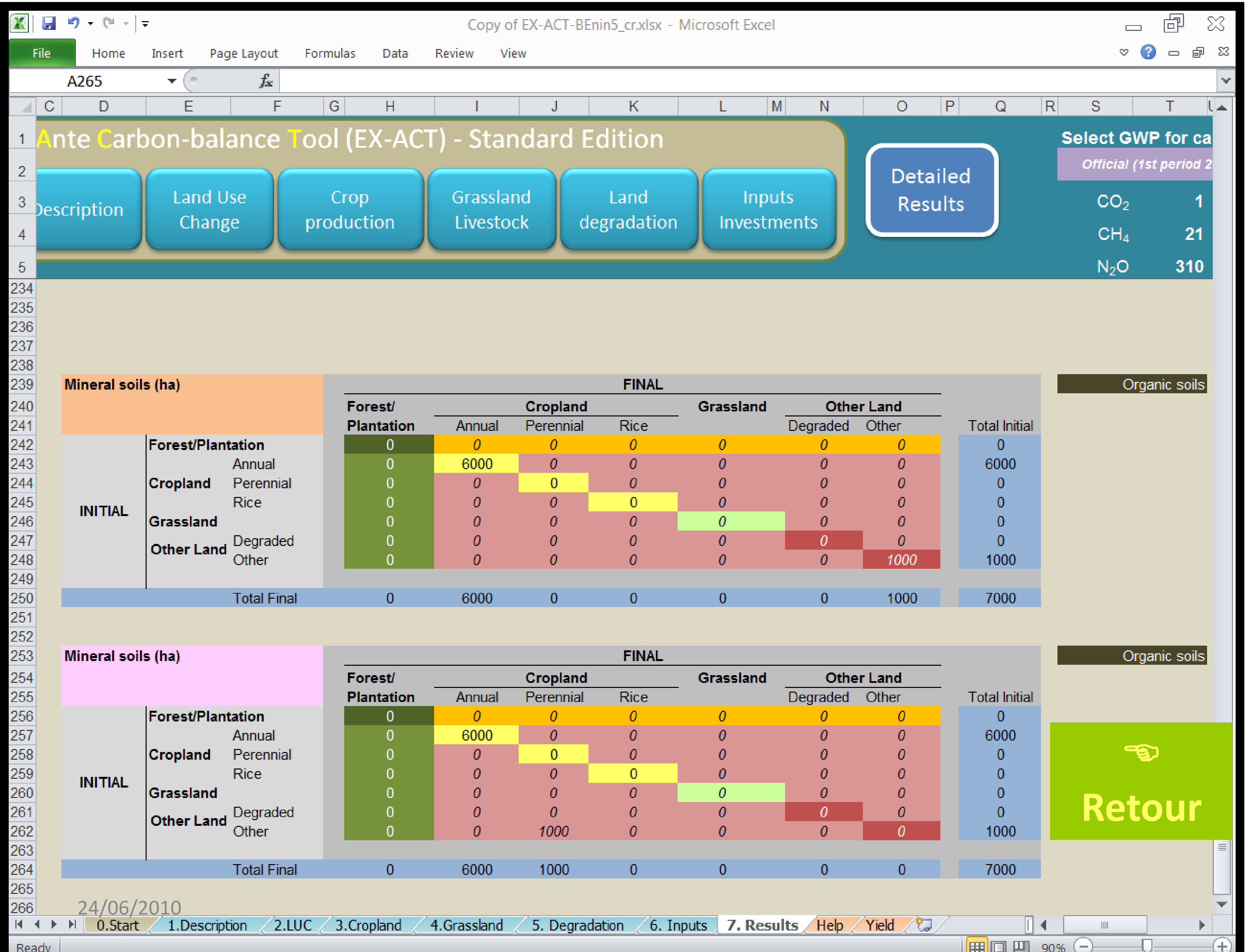
Name of the project	Land rehabilitation an	**Climate**	Tropical (Moist)	**Duration (yr)**	20
Continent	Africa	**Soil**	LAC Soils	**Total area (ha)**	130000

Component of the project	**Gross fluxes** **Without**	 **With**	 **Balance**	**Share per GHG of the Balance** **Result per GHG** **CO_2** **Biomass**	 **Soil**	 **Other**	 **N_2O**	 **CH_4**	**Results per year** **without**	 **with**	 **Balance**
	All GHG in tCO_2eq **Positive = source / negative = sink**										
Land Use Changes											
Deforestation	3,302,710	825,677	-2,477,032	-2,180,849	-235,235		-18,451	-42,497	165,135	41,284	-123,852
Afforestation	0	0	0	0	0		0	0	0	0	0
Other	836,917	-1,068,971	-1,905,888	-111,467	-1,794,421		0	0	41,846	-53,449	-95,294
Agriculture											
Annual	0	-3,211,250	-3,211,250	0	-3,211,250		0	0	0	-160,563	-160,563
Perennial	0	-1,743,167	-1,743,167	-1,620,667	-122,500		0	0	0	-87,158	-87,158
Rice	0	0	0	0	0		0	0	0	0	0
Grassland & Livestocks											
Grassland	0	0	0	0	0		0	0	0	0	0
Livestock	0	0	0				0	0	0	0	0
Degradation	0	0	0	0	0		0	0	0	0	0
Inputs & Investments	224,030	322,044	98,013			55,419	42,595		11,202	16,102	4,901
Total	4,363,657	-4,875,666	**-9,239,323**	-3,912,982	-5,363,406	55,419	24,143	-42,497	218,183	-243,783	-461,966
Per hectare	34	-38	-71	-29.7	-41.3	0.4	0.2	-0.3			
Per hectare per year	1.7	-1.9	-3.6	-1.5	-2.1	0.0	0.0	0.0	1.7	-1.9	-3.6





☜ Retour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A265
Description
Land Use Change
Crop production
Grassland Livestock
Land degradation
Inputs Investments
Detailed Results
Retour
0.Start
1.Description
2.LUC
3.Cropland
4.Grassland
5. Degradation
6. Inputs
7. Results
Help
Yield
Ready
90%

Ante Carbon-balance Tool (EX-ACT) - Standard Edition

Select GWP for ca

Official (1st period 2

CO_2	1
CH_4	21
N_2O	310

Mineral soils (ha)

Organic soils

			FINAL						
		Forest/ Plantation	**Cropland**			**Grassland**	**Other Land**		
			Annual	Perennial	Rice		Degraded	Other	Total Initial
INITIAL	**Forest/Plantation**	0	*0*	*0*	*0*	*0*	*0*	*0*	0
	Cropland Annual	0	6000	*0*	*0*	*0*	*0*	*0*	6000
	Perennial	0	*0*	0	*0*	*0*	*0*	*0*	0
	Rice	0	*0*	*0*	0	*0*	*0*	*0*	0
	Grassland	0	*0*	*0*	*0*	*0*	*0*	*0*	0
	Other Land Degraded	0	*0*	*0*	*0*	*0*	*0*	*0*	0
	Other	0	*0*	*0*	*0*	*0*	*0*	*1000*	1000
	Total Final	0	6000	0	0	0	0	1000	7000

Mineral soils (ha)

Organic soils

			FINAL						
		Forest/ Plantation	**Cropland**			**Grassland**	**Other Land**		
			Annual	Perennial	Rice		Degraded	Other	Total Initial
INITIAL	**Forest/Plantation**	0	*0*	*0*	*0*	*0*	*0*	*0*	0
	Cropland Annual	0	6000	*0*	*0*	*0*	*0*	*0*	6000
	Perennial	0	*0*	0	*0*	*0*	*0*	*0*	0
	Rice	0	*0*	*0*	0	*0*	*0*	*0*	0
	Grassland	0	*0*	*0*	*0*	*0*	*0*	*0*	0
	Other Land Degraded	0	*0*	*0*	*0*	*0*	*0*	*0*	0
	Other	0	*0*	*1000*	*0*	*0*	*0*	*0*	1000
	Total Final	0	6000	1000	0	0	0	0	7000

24/06/2010