Food and Agriculture Organization of the United Nations

The EX-Ante Carbon-balance Value Chain (VC) Tool - v.1.1

Start | Description | Land use change | Agricultural practices | Production inputs | Processing | Transport | Economic Analysis | Value chain Resilience | Value chain Results

EX-Ante Carbon-balance Value Chain (VC) Tool v.1.1

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EX-ACT VC : An innovative tool to assess multi-benefits of food value chains

I-Background

EX-ACT VC

Derived from EX-ACT : provide rapid ex–ante estimations of the impact of agriculture and forestry development projects on GHG emissions and carbon sequestration. (climate mitigation analysis)

New module adapted for value chain analysis

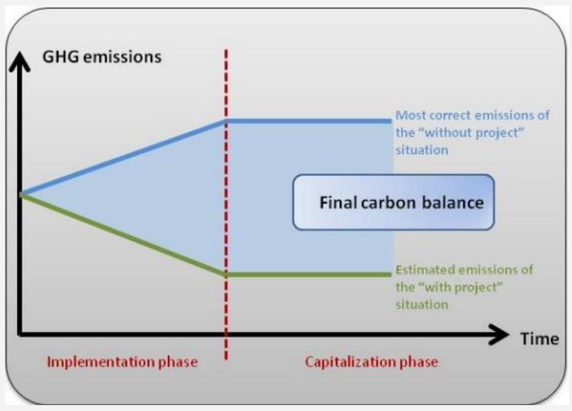
Climate mitigation for an entire VC

Climate resilience & adaptation

3 dimensions in the tool

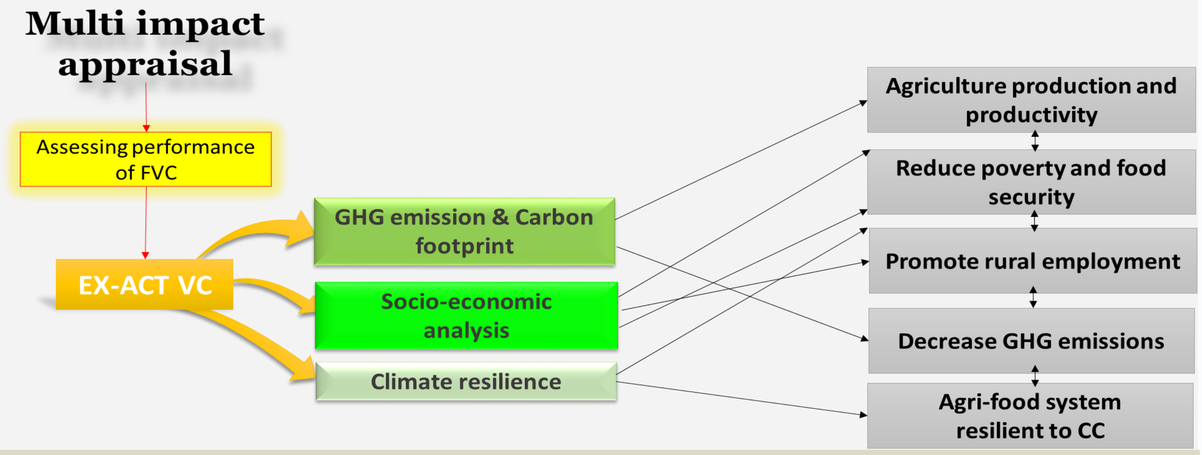
EX-ACT VC is a cost-effective and easy to use tool that provides a rapid multi-dimension analysis of the impact and performance of food value chains in terms of climate mitigation, adaptation, resilience and socio-economic analysis.

EX-ACT VC compares a project scenario to a control reference (without project) scenario



II-Objectives of the tool

The EX-ACT Value Chain tool is a tool derived from EX-ACT and retargeted for simple value chain analysis. It aims to assess multi-impact appraisal either for the current situation of the value chain and an upgraded project scenario.



III- Basic contents of EX-ACT VC and main outputs

Producers – Processing – Transport – Wholesaler – Retailers

8 linked Microsoft Excel sheets :

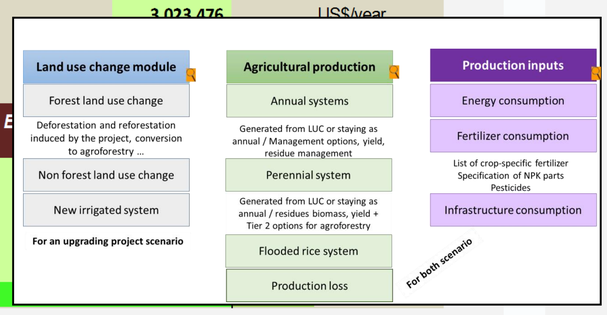
1. A general description of the current situation of the VC;
2. Identification of changes and technologies foreseen in the VC upgrading using specific "modules" (*Land use change – forest, non-forest, Agricultural practices – annual/ perennial crop, rice cultivation, irrigated systems, Production inputs, Processing and Transportation inputs*);
3. Economic analysis using previous data for every level of the VC;
4. For an upgraded project scenario, a qualitative identification for climate resilience analysis.

IV- EX-ACT VC Results

1. GHG emission and carbon footprint

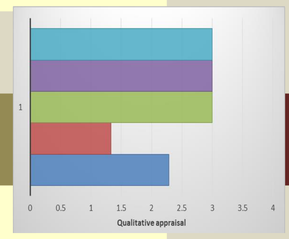
Climate Mitigation dimension of the value chain (s)	Current situation	Value chain upgrading project	Balance	
GHG impact per year in TCO2	1,944,254	1,641,906	-302,348	TCO2/ year
GHG impact per year per ha	13	11.01	-2.0	TCO2/ha
Carbon footprint per ton of production	3.8	2.93	-0.9	TCO2/ t of product
Incremental Tonnes of CO2 equivalent (t CO2eq) emitted (+) / reduced or avoided (-)		- 302,348		TCO2
Equivalent project cost per Ton of CO2 reduced		0		US$/TCO2
Equivalent value of mitigation impact per year (US$ 10/TCO2)		3,023,476		US$/year
Equivalent value of mitigation impact per year per ha (US$ 10/TCO2)				

Carbon footprint at the different levels of the Value Chain	E
PRODUCTION	
PROCESSING	
TRANSPORT	
PRODUCT LOSS	
RETAIL	
TOTAL	



2. Climate resilience

	Climate Resilience dimension (s)	Current situation	Improved VC	
Quantitative	Hectares of land managed under climate-resilient practices	149100	142400	ha
	Hectares with improved tree and vegetal coverage (land slide, flood resilience)	0	0	ha
	Number of hectares with increased soil carbon (drought and erosion resilience)		-6700	ha
	Number of HH having become more climate resilient		0	HH
Qualitative	Resilience index of the value chain upgrading		Value chain upgrading project	
	Buffer capacity of watershed and landscape and project area		medium	
	Buffer capacity of crop –livestock production		low	
	Buffer capacity of households in relation to food sec			
	Self-organisation of households			
	Learning capacity of households			
	Global climate resilience generated by V			



Multicriteria qualitative appraisal

→Qualitative data entry

→**36 questions on buffer capacity** (watershed, crop production and households) **self organisation and learning capacity –** *5 sub-group=5 qualitative index*

→**Expert group assessment**

→**Indicator weighting**

3. Socio-economic dimension– Aggregation at VC

Aggregated Socio-economic performances	Current situation	Value chain upgrading project	Balance
Value added	66376	119570	
Gross production value	165075	223943	
Gross income	1152	70604	
Total job generated	50804	36244	-14560 Jobs created

Gross production value
Minus Intermediate Inputs
= Value added
Minus labour, bank interests taxes
= Gross income

Labour generated
= Number of man-day/ha or tons of product / 250 days

Gross margin
=Production value – total costs