for

Agrifood Systems

Module 2

Agrifood system and value chain analysis

ValueLinks for Agrifood Systems

Framework	Analysis & Strategy	Transformative Actions Menu	
1 Scope of transformation	**2 Agrifood system analysis**	4 Green & social business models	7 Financing and insurance
	3 Transformative strategy	5 Reliable & fair business linkages	8 Nutritious food and standards
		6 Services for innovation	9 Policies for AFS transformation

Module 2 Agrifood Systems and value chain analysis

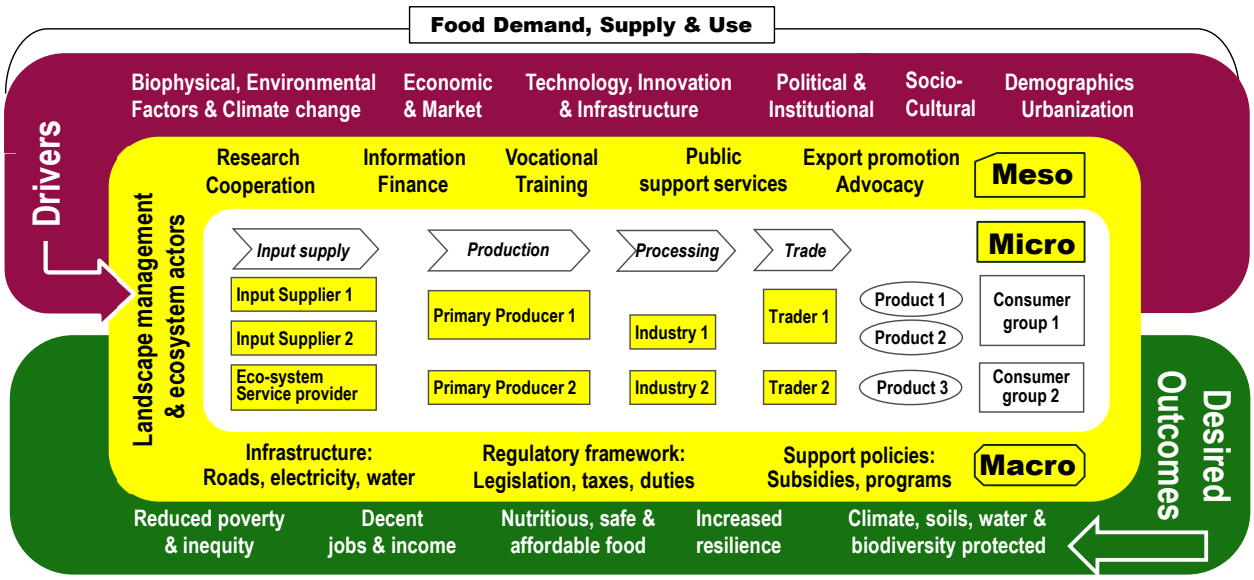
01 Agrifood Systems analysis and VC mapping

02 Environmental and climate analysis (PLANET)

03 Social analysis (PEOPLE)

04 Economic analysis (PROSPERITY)

ValueLinks for Agrifood Systems



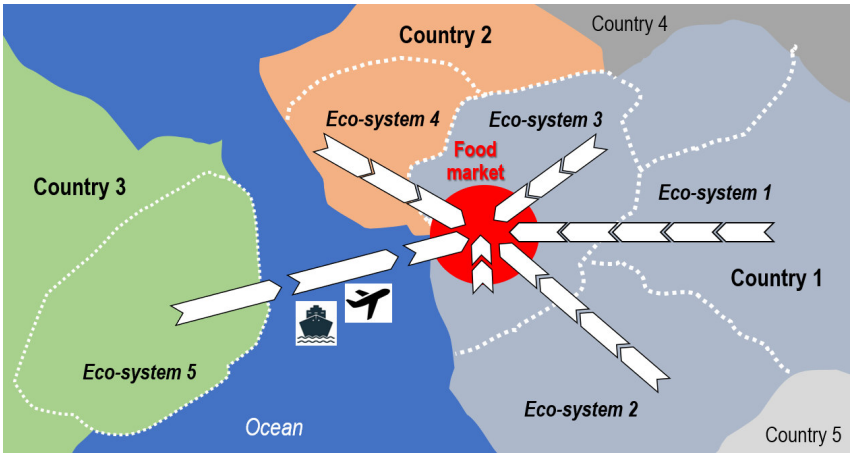
Agrifood systems can involve different countries, ecosystems & value chains

Ghana urban markets as example

Domestic production from different regions of Ghana
- Maize, cassava, yams
- Mango, pineapple
- Chicken, beef, fish

Imports from neighbouring countries
- Onions, beef (Niger, Burkina, Mali)
- Vegetables (Togo)

Imports from overseas
- Eggs, milk, butter etc (Europe)
- Rice from Vietnam Mekong Delta
- Etc.



Value chain including stages

Analysis and mapping of an Agrifood System

Which Agrifood System are we talking about? ➔ name a **country**

What is the **scale** of the Agrifood System at stake? ➔ national or regional?

Analyze the **consumption side**
- **Step 1** Consumer Groups
- **Step 2** Food baskets

Analyze the **supply side**
- **Step 3** AFS analysis
- **Step 4** Value chains & regions

Determine the **specific drivers of change**

Method: Analyse the consumption side

Food systems dashboard
Food basket tool

Step 1 **Identify consumer groups** according to food habits & nutrition status

→ **Distinguish**: - rural / urban - subsistence / commercial
- low income / high income - gender / age

→ **Determine size of consumer groups**

→ **Determine nutrition status per consumer group:**
undernutrition, malnutrition, obesity

Step 2 **Identify food baskets of consumer groups**

→ **Determine the most important food types consumed**

Carbohydrates: maize, rice, wheat, roots, tubers, sugar …
Animal protein: meat, milk, fish, eggs, cheese …
Protein from plants: pulses, nuts …
Fats: Cooking oils, butter / ghee, cheese, nuts …
Fresh vegetables and fruits
Processed food: dried / canned / smoked / fast / street food
Drinks: Water supply & quality, juices, soft drinks, alcoholic drinks

Case: Egypt's Agrifood System

Step 1			**Step 2**
Consumer group	**Size**	**Nutrition status**	**Food basket**
Urban** (>100.000), **middle to high income	**5 million**	40-60 % overweight to obese	Wheat bread, couscous, pasta, rice, chicken, eggs, lamb and red meat, fish, milk products, legumes (chick peas, beans, lentils), dates, processed food, sugar, soft drinks
Urban** (>100.000), **low income	**39 million**	8% malnourished children 40-60 % overweight to obese	Baladi wheat bread, sugar, tea, couscous, pasta, chicken, soft drinks
Rural non-poor	**54 million**	Data tbd	Wheat bread, couscous, sugar, tea, rice, chicken, eggs, lamb and red meat, fish, milk products, legumes (beans, lentils), dates, fresh vegetables
Rural poor (incl. subsistence) *(poverty line = 2,15 USD / day)*	**2 million**	Undernourishment, Child stunting, anaemia (women), (data tbd)	Wheat bread, Couscous, chicken, legumes, eggs

Global Nutrition Report 2022: 39.8% of adult Egyptians were obese (Body Mass Index ≥ 30)

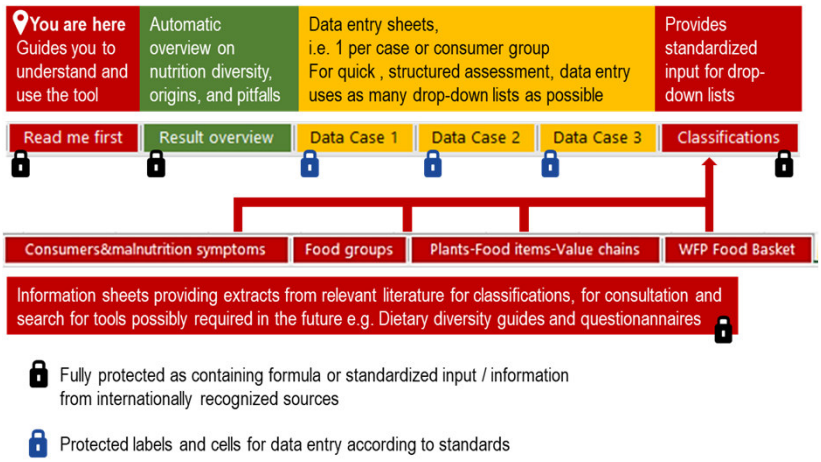
Excel-based Food Basket assessment *

Purpose:

- Structured and well-based assessment of a food basket of specific consumer groups / regions
- Prelude to assess/ select value chains

Excel file in your seminar download link

* Developed 2025 by Annemarie Matthess with contributions from Sarah Dib



Method: Analyse the supply side – detailed version

Step 3 → **Identify the sources of each food item**:

- National market and subsistence production
- Imports and their percentage in total consumption
- In addition: Identify important agricultural export products:

Food basket tool

→ **Determine the respective value chains**

- according to their contribution to nutrition of each strata (kcal consumed, protein content)
- The total size of markets (as different social strata may shop in the same markets)

Step 4 → **Map the relevant food VCs working from the markets backwards**

- Markets (open markets, supermarkets, restaurants, institutions, etc)
- Chain structure establishing linkages between operators in different channels
- Non-processed food as an end product / as an input into processing
- Combinations of crops / food products in farm and in food preparation
- Competition for land and water at production sites

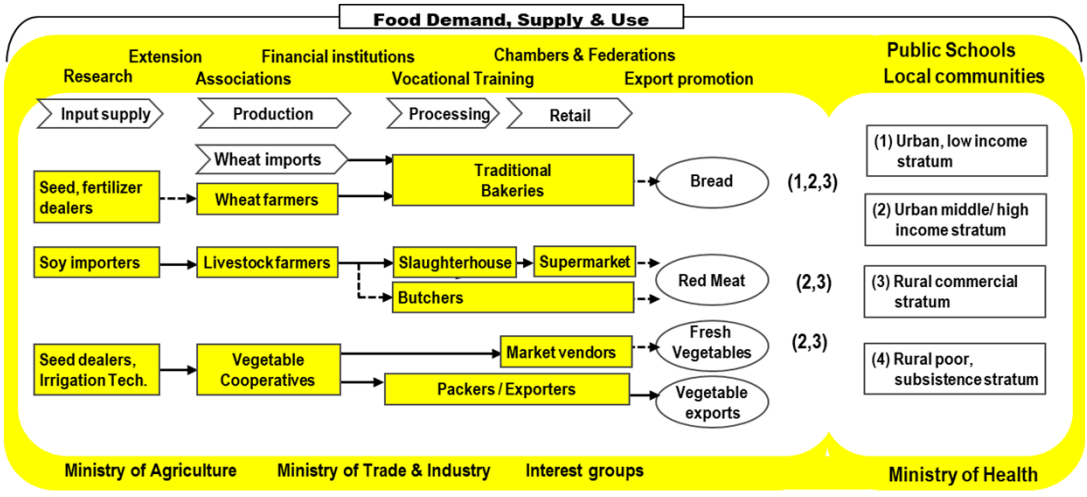
Supply of important food items – case of Egypt

Step 3 Importance of markets & value chains

Food items	Sources (= value chains)	Current importance for nutrition	Size of market Total turnover	…	Priority of VC
Wheat bread, Couscous	60% imported 40% locally produced	Basic staple, largest supplier of kcal	20 million tons per year 4 billion USD		
Pulses Chick pea, beans, lentils					
Chicken & eggs					
Fish					
Red meat, milk					
Fresh vegetables					
Processed food (specify)					
Exports: Cotton, fresh vegetables & fruit	Foreign exchange earner	None or indirectly	8,8 billion USD		

Respective value chains in Egypt's Agrifood System

Step 4 Map the most relevant food VCs



Food Systems Dashboard

Describe, Diagnose, Decide

Global & country specific data on over 280 indicators related to

- Drivers
- Food supply chains
- Food environments
- Individual factors
- Cross-cutting issues
- Outcomes

English
Español
Français
中文
Русский
العربية
português
हिन्दी

Maps, Graphics, Tables & Downloads

Food Systems Dashboard

Global Dashboard → Indicators across countries

Country diagnostics → Performance & challenge areas

Food Systems Countdown Initiative (FSCI)
→ Benchmarking against 50 selected indicators
(1) Diets, nutrition, and health; (2) Environment, nat. resources, & production; (3) Livelihoods, poverty, and equity; (4) Governance; (5) Resilience

Interactions of FSCI indicators → focus & impact chains

Policy & Action Areas → Healthier Diets
→ Environmental Sustainability

Country Dashboard Admin levels → for 6 countries (05/2025)
state, province, county, division, and/or city

Food Systems Dashboard

Support for conducive use

Indicator overview for your initial orientation
in your seminar download link

Definition and way of calculation for each indicator under
Indicators - Food Systems Dashboard

Drivers
- Environment and climate change
- Globalization and trade
- Income growth and distribution
- Urbanization
- Population growth and migration
- Policies and leadership
- Socio-cultural context

Food Supply chains
- Production systems and input supply
- Storage and distribution
- Processing and packaging
- Retail and marketing

Food Environments
- Food availability
- Food affordability
- Product properties
- Vendor properties
- Food messaging
- Food safety

Individual Factors
- Economic factors
- Situational
- Behavioural factors

Cross-Cutting Issues
- Governance
- Resilience

Outcomes
- Environmental Impacts
- Food security
- Infant and young child feeding practice
- Dietary intake & diversity
- Nutritional status
- Noncommunicable diseases
- Livelihoods, Poverty, and Equity

Zooming in on specific value chains

Agrifood System

National Agrifood System
Regional Agrifood System
Urban Agrifood system

Value Chains

- Rice
- Wheat
- Broiler
- Eggs

Channel

according to end product and/or marketing/distribution system

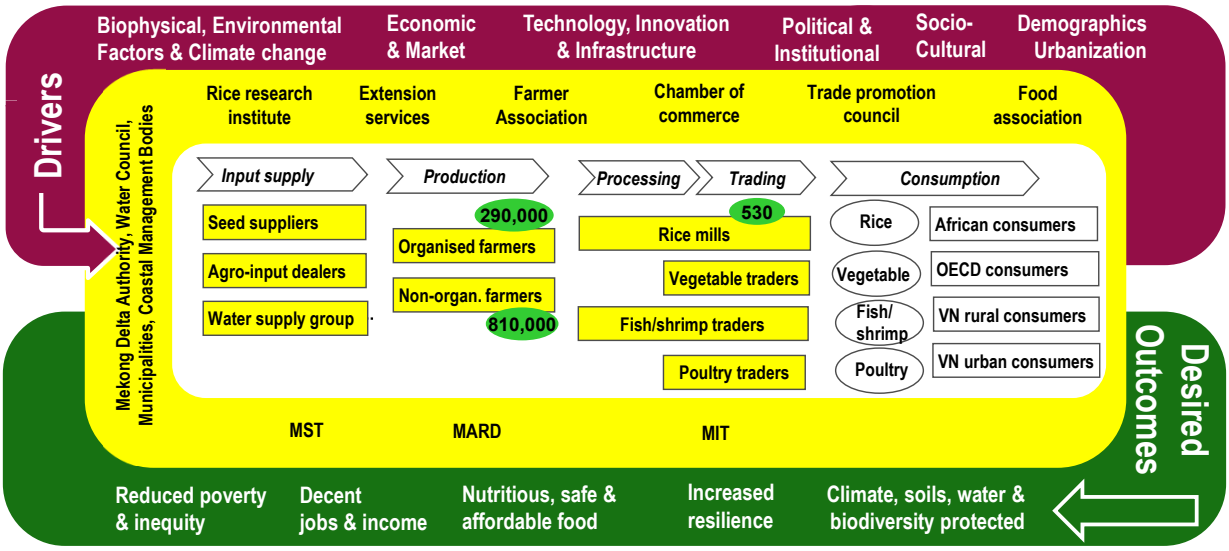
- Wheat bread
- Fortified wheat flour
- Wheat as animal feed

Results of value chain assessment & selection

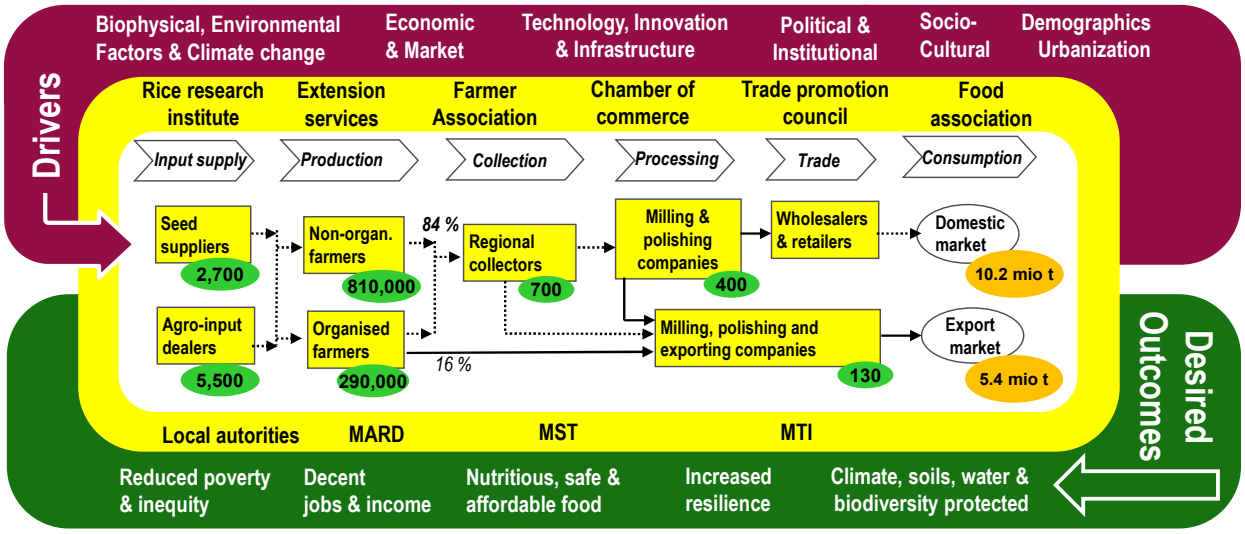
	Key criteria	Indicators	Avocado	Teff	Sesame
Prosperity	Market demand prospects (5 to 10 yrs)	Price development, market forecasts	5	5	5
	Employment creation	Job creation potential	5	4	3
	Comparative advantages	Benchmarking with main competitors	4	4	4
People	Nutrition relevance	Importance as staple food, nutrition values	5	5	4
	Potential to lift out of poverty	Income potential per ha	5	3	2
	Inclusion of disadvantaged groups	Job creation potential for women	4	5	3
Planet	Ecosystem protection	Biodiversity & soil protection, water harvesting	4	3	3
	CC adaptation & resilience	Level of vulnerability/adaptation options	4	5	3
	Reducing / absorbing emissions	Negative impact/potential to improve	4	2	2
Other Criteria	National policy priorities	Sector strategy, environmental & social policies	5	4	5
	Evidence & Synergy of initiatives	Plans, interest, readiness to change	5	4	4
		Total scores	50	44	~~38~~

Selected

The Mekong Delta Agrifood System



Rice VC in the Mekong Delta



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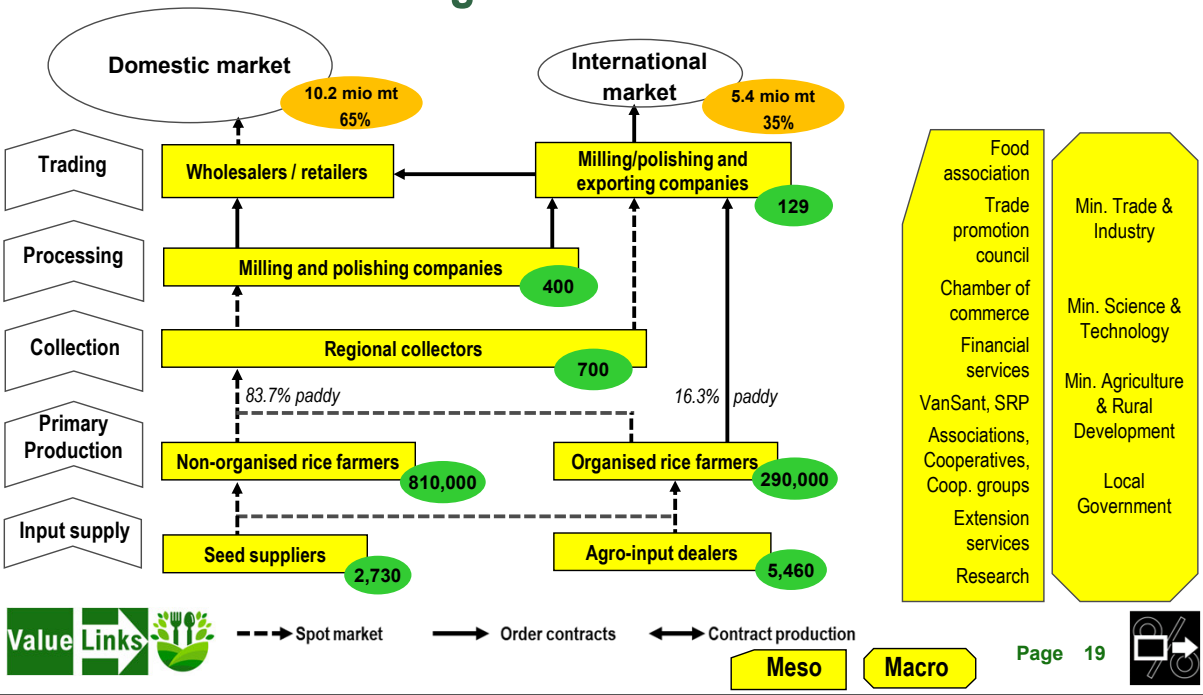
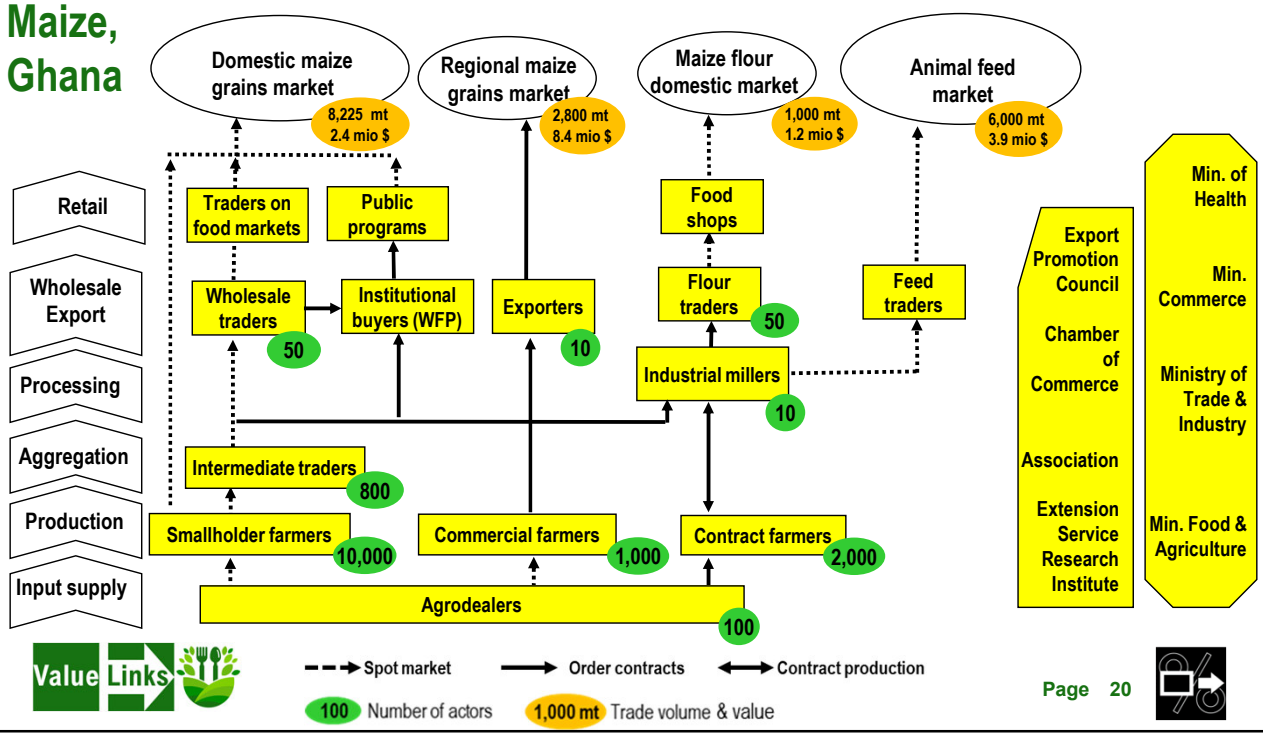


Maize, Ghana



Mapping symbols

Micro level

VC stage

VC operator

Meso level

VC supporter

Macro level

VC enabler

Linkages at micro level

Spot market transactions

Order contracts / Forward contracting

Subcontracting linkage
e.g. Contract production

Operational or financial Service linkage

How to map value chains

(1) Determine the ***end product***
(2) Identify ***market segments*** including data on volume and/ or value if available
(3) Define the sequence of ***value chain stages***
(4) Depict ***operators*** and the functions they assume at micro level
including numbers of operators per stage if available
(5) Map the ***business linkages*** at micro level
(6) Differentiate the chain at micro level into several ***channels***
as needed
(7) Map ***operational service providers*** at micro level
(8) Map ***support service providers*** at meso level
(9) Map relevant ***government institutions*** at macro level
(10) Compile the constraints per VC stage and those cutting across VC stages

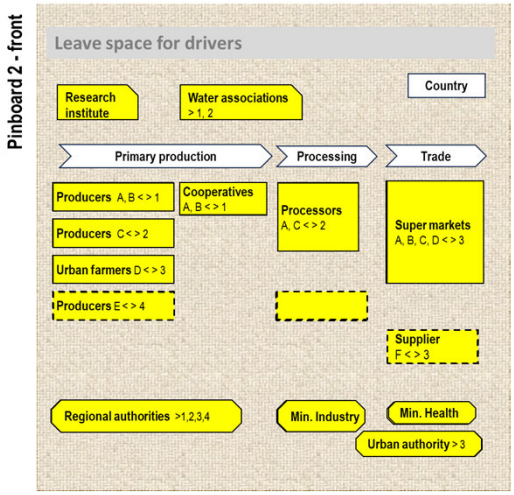
Work as far as possible with VC actors from all levels

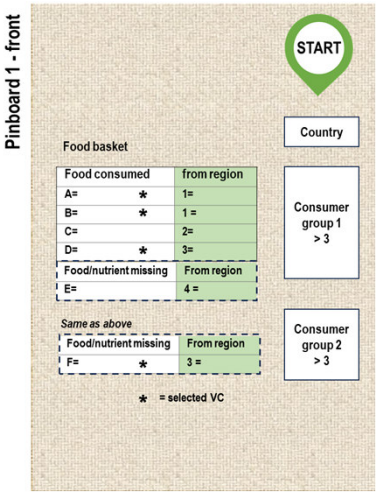
Iterative and/or in workshops

What makes good maps

- The map shows a realistic picture of the status quo
- Relevant actors have contributed through representatives
- The map has a clear message and boundaries
- Separate maps for micro, meso and macro analysis
- Not more than 3 to 4 channels at a time
- People who have not participated in making the map understand it

Group work 1 The AFS & Focus on transformation





Pinboard 1 front

- Identify consumer groups
- The food they consume
- Regions providing this food
- Identify food / nutrients missing for a healthy diet

Pinboard 2 front

Leave space for drivers of transformation

- AFS Actors micro, meso & macro level along value chain stages
- Option: indicate product<>region related to actors using information from front pinboard 1

Module 2 Agrifood systems and value chain analysis

01 Agrifood systems analysis and VC mapping

02 Environmental and climate analysis (PLANET)

03 Social analysis (PEOPLE)

04 Economic analysis (PROSPERITY)

Environmental and climate analysis (Planet)

Which topics deserve in-depth studies?

In Agrifood Systems, enterprises and consumers …

… cause negative impact on climate and environment	… are affected by climate change and environmental degradation	… can contribute positively to the climate and environment
▪ Forest or wetlands destruction for food production ▪ Loss of ecosystem functions (soi fertility, pollination, …) ▪ Emissions from production techniques, waste. ▪ Wasteful utilization of scarce resources (water, soil)	➔ Floods, storms, heavy rains, drought, higher temperatures ➔ Destruction of infrastructure, production facilities, fields harvests ➔ Lower productivity, higher production cost ➔ Rising prices for food, water, energy, raw materials, waste disposal	▪ Carbon offsetting ▪ Carbon insetting ▪ Renewable energy ▪ Pollination ▪ Agroforestry
... reduce emissions, manage ecosystems	**… adapt consumption & production patterns to climate change**	**…take up new consumption & business models**

Impact on ecosystems

Agrifood systems can involve different countries, eco-systems & value chains

Ghana urban markets as example

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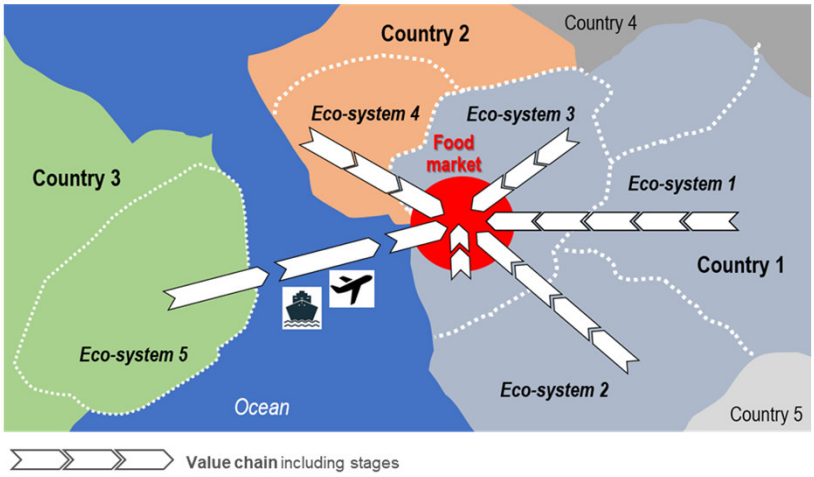


Environmental analysis of Agrifood Systems

1. **Conceptual framework of the interaction between the AFS and the environment**

- Table of environmental impacts

2. **General qualitative assessment tools for environmental analysis**

- Hot spot analysis
- Climate proofing
- Geodata assessments
- Rapid Loss Appraisal Tool

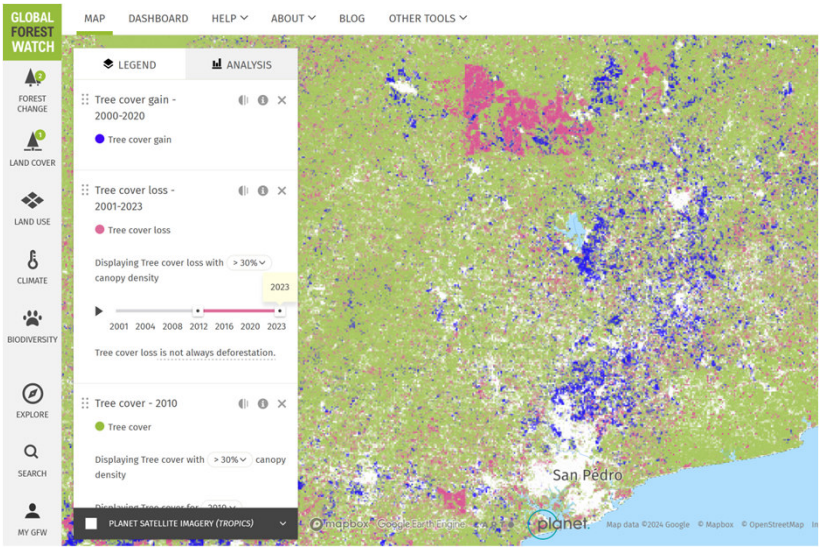
3. **Advanced quantitative assessment tools for climate change and environmental analysis**

- Life Cycle Assessment or FAO EX-ACT tools
- FAO B-Intact Biodiversity Assessment

Step 1: Table of environmental impacts

AFS stage	Technical processes	Environmental impacts **OF** the AFS	Environmental impacts **ON** the AFS
Primary production	Irrigated rice production	➲ Water scarcity aggravation ➲ Methane emissions	⊂ Unreliable rainfall/drought
	Vegetable production	➲ Use of harmful pesticides leading to loss of biodiversity, water pollution	⊂ Temporary flooding, heavy rains, moisture
Intermediate trade	Bulking / storage	➲ Losses due to inefficient storage	⊂ Infrastructure damages due to storms
Processing	Rice milling	➲ Inefficient use of energy	⊂ Frequent power cuts in summer
	Vegetable processing	➲ Packaging material creating plastic waste	⊂ Polluted ground water
Trade	Road transport	➲ Air pollution, carbon emissions	⊂ Landslides blocking market access
Consumption	Cooking with firewood	➲ Overexploitation of firewood leading to deforestation	⊂ Rising firewood prices

Global Forest Watch



Free source to map deforestation:

- Timeline of satellite data showing deforestation & afforestation
- Online zooming in any particular zone
- Good data source for first estimation

https://globalforestwatch.org/map/

Step 2: Hot spot analysis

(A) Intensity of resource use e.g. water, energy, soil	(B) Availability of the resource	(A) x (B)
▪ High intensity of use → (3) ▪ Medium intensity of use → (2) ▪ Low intensity of use → (1)	▪ Resources almost depleted → (3) ▪ Resources become scarce → (2) ▪ Resources largely available → (1)	1-5: No hot-spot 6-9: Hot-spot

(A) Impact of the AFS on environment or climate	(B) Adaptation capacity of environment/climate	(A) x (B)
▪ Complete ecosystem loss / severe damage → (3) ▪ Significant damage → (2) ▪ Interference with ecosystem → (1)	▪ Unacceptable damage →(3) ▪ Damages can be compensated →(2) ▪ Damage within limits, fully reversible →(1)	1-5: No hot-spot 6-9: Hot-spot

Step 2: Hot spot analysis result

VC stage	Technical processes	Water	Energy	Soil	Ecosystems	Climate
Primary production	Irrigated rice production					
	Vegetable production					
Intermediate trade	Bulking / storage					
Processing	Rice milling					
	Vegetable processing					
Trade	Road transport					
Consumption	Cooking with firewood					

High intensity of water use in the irrigation area: **3**

Resources almost depleted: **3**

3x3 = 9! Hot spot

Step 2: Rapid Loss Appraisal Tool (RLAT) with AFS actors

Including hot spot analysis

VC Function (cf. VC map)	immediate effect	Likely later effect	Relevance (0–3)	Importance (0–3)	Hot spot (6–9)
Input supplies					
• …					
Harvest					
• …					
Aggregation					
• …					
Transport					
• …					
Same approach for Wholesale Trade, Processing, Retail Trade					

Loss occurrence & effect at same VC stage

Missed opportunities

Prohability of event (0–3) „How likely is the event?“

Severity of event (0–3) “How many people suffer?”

Hot spot if “Relevance x importance” = 6 or 9

Rapid Loss Appraisal Tool (RLAT)
for agribusiness value chains
User guide for maize

Ostermann H., Will M., Hell K. 2015. Rapid Loss Appraisal Tool (RLAT) for agribusiness value chains, User guide

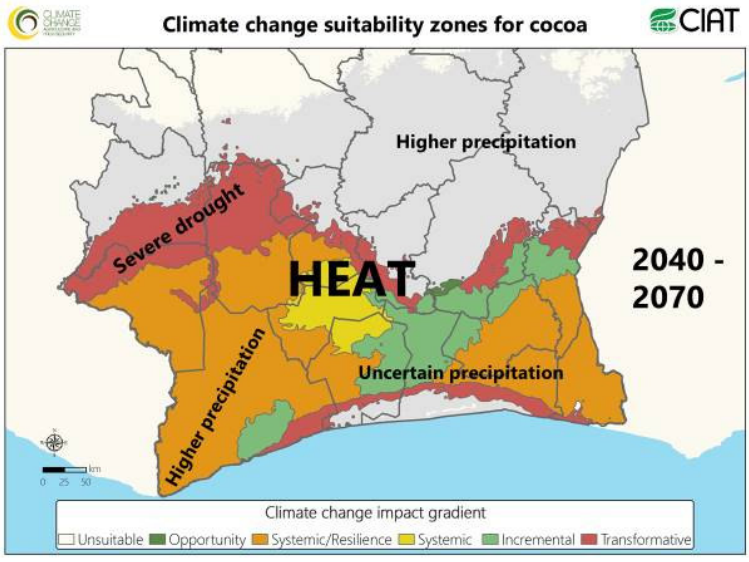
Step 2: Climate Proofing

Probability of climate hazard	Level of risk	Extent of damage		
		Low	Medium	High
	High	Medium	High	High
	Medium	Low	Medium	High
	Low	Low	Low	Medium

System of interest (VC function)	Climate hazard of concern	Impact	Vulnerability		Risk level	Adaptation options
			Sensitivity	Adaptive capacity		
Primary production of apricots	Late frost	Loss of harvest	Destroys 70% flowers during flowering period. High altitudes/ young plantations particularly affected.	Protection nets new research findings available, income loss compensation by diversification		Promote protection nets, Introduce water sprinkling equipment Plant new late flowering varieties Diversify (plums) Insurance
	…..					
Trading of apricots	Avalanches	Market access blocked for weeks	Can affect 70% of the production area	Income loss compensation by diversification		Develop processing facilities

Step 3: Geodata to show & forecast environmental impacts

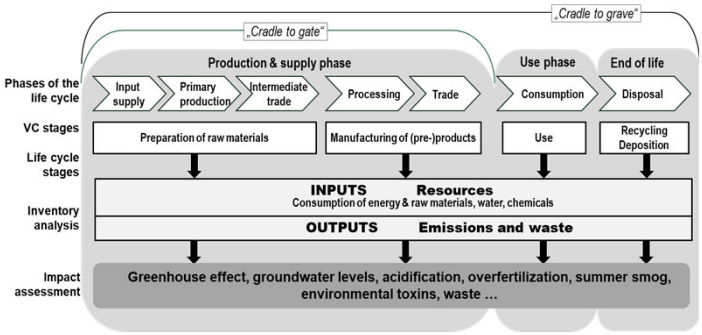
Bunn C., Fernandez-Kolb P., Lundy M. 2019. InfoNote Climate Smart Cocoa in Côte d'Ivoire
Full version under your download link



Step 3: Life cycle analysis method

Phases according ISO 14040/44 (2006)

1. **Definition of goal and scope**
2. **Life cycle inventory**
   Input/output analysis of mass and energy flows
3. **Life cycle impact assessment**
   Evaluation of Environmental Relevance
4. **Interpretation**
   Optimisation potential



Source adapted from GIZ. 2013. The Ecological Footprint of Cassava and Maize Post-Harvest-Losses in Nigeria. A Life Cycle Assessment.. Page 17

European Commission

European Platform on LCA | EPLCA

Overview	EPLCA Consumer Footprint Foods.pdf
Advanced	EPLCA International reference life cycle data system (ILCD) handbook
Data	EPLCA Life Cycle Data Network Contact List
Interesting	EPLCA European Food System Waste

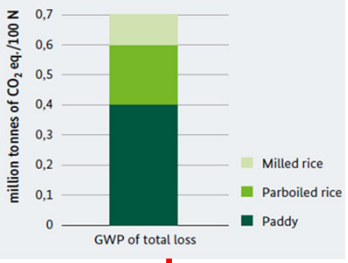
Step 3: Life cycle analysis

Environmental impacts of post-harvest losses along rice value chains Nigeria

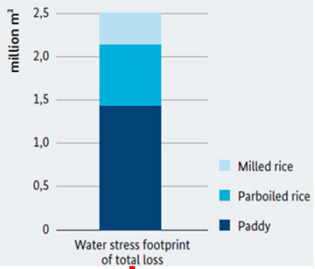
1.050 million tons
paddy and milled rice lost each year

EUR 265 million
Value lost p.a.

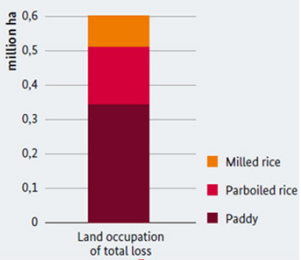
Global warming potential
0.7 million tons of CO_2eq



Water stress foot print
2.5 million m^3



Land used for losses
600,000 hectares



Pressure → **Biodiversity**

Case and figures: GIZ 2014. Post-Harvest Losses of Rice in Nigeria and their Ecological Footprint

Step 3: Ex-ACT Ex-Ante Carbon-balance Tool V.9

1. Scope

- Region, country, climate, moisture , soil type
- Duration of analysis (Implementation & Capitalization phase)

➔ **Triggers default parameters in the tool**

2. Focus on primary production & inputs

- **All agric. activities** including de/re/afforestation, other land use changes, annual/perennial crops, flooded rice, Inputs.
- **Grasslands, Livestock, Forest mgt.,**
- **Inland/coastal wetlands, Fisheries, Aquaculture**,

3. Results in key indicators

- Total carbon balance* and by activity
- Annual carbon balance (total, average, per hectare)
- GHG fluxes with & without intervention scenarios
- Disaggregated by Greenhouse gases CO_2, CH_4, N_2O

FAO. 2022. Ex-Ante Carbon-balance Tool | EX-ACT – Guidelines. 2nd edition

Above ground biomass
Below ground biomass
Litter, Deadwood and Soil

↓

Emissions and carbon stock changes

↓

Carbon-balance
With & without project

Food and Agriculture Organization of the United Nations

Set of linked Microsoft Excel sheets

User inserts basic data
on agricultural activities and practices

Analysis automated

- Ex ante
- Monitoring
- Ex post evaluation

Download with registration
EX-ACT | Economic and Policy Analysis of Climate Change | Food and Agriculture Organization of the United Nations (fao.org)

Step 3: Ex-Ante Carbon-balance Tool

The Accelerated Food Security Project in Tanzania

GHG impact (t CO_2-equivalents)

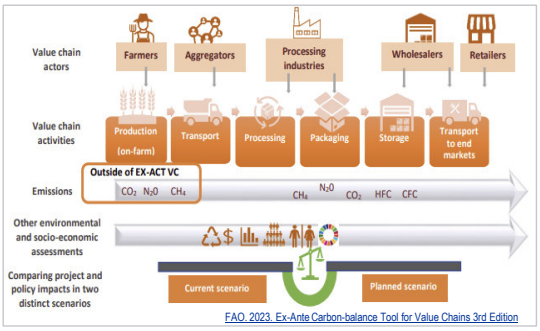
Food and Agriculture Organization of the United Nations

Project components	Without project	With project	GHG balance for 20 years
Annual crops	12 199 908	- 416 653	-12 616 561
Irrigated Rice	592 005	3 199 722	2 607 667
Fertilizer emissions	982 045	5 321 271	4 339 226
Other investments	0	235	235
Total area 1 058 385 ha	Final GHG balance		- 5 669 433
	Per ha		- 5,4
	Per ha/yr		- 0,27

Positive values = GHG sources
Negative values = GHG sinks / reductions

Step 3: Ex-ACT VC Ex-Ante Carbon-balance tool for value chains

Food and Agriculture Organization of the United Nations



FAO. 2023. Ex-Ante Carbon-balance Tool for Value Chains 3rd Edition

Scope

- Annuals, perennials, dairy, meat and fish
- 1 commodity at a time, max. 9 actors, max. 5 activities
- All data for a specific year (e.g. GHG emissions, cost, revenues, jobs)

Limits

- Static model for 1 year, Current vs planned scenario
- By-products require a parallel analysis (2nd excel file)
- Minimal level of food processing of pure product
- Micro-meso level of analysis
- No uncertainty assessments

Download with registration

EX-ACT | Economic and Policy Analysis of Climate Change | Food and Agriculture Organization of the United Nations (fao.org)

Value Links

Step 3: B-INTACT Biodiversity Integrated Assessment and Computation Tool

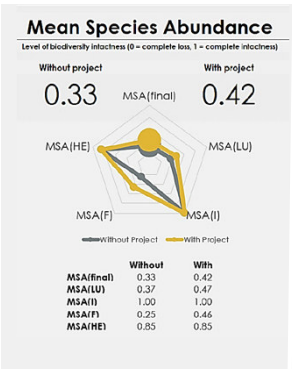
Food and Agriculture Organization of the United Nations

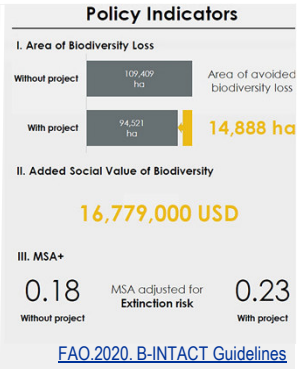
Purpose

- Biodiversity impact at project and policy-level
- Policy indicators to support informed decisions;
- Capture biodiversity concerns not accounted for in conventional carbon pricing;
- Support countries to access funds from intern. financial institutions and mechanisms to fund projects, programs and policies.

Download with registration

EX-ACT | Economic and Policy Analysis of Climate Change | Food and Agriculture Organization of the United Nations (fao.org)





FAO.2020. B-INTACT Guidelines

Value Links

Module 2 Agrifood Systems and value chain analysis

01 Agrifood Systems analysis and VC mapping

02 Environmental and climate analysis (PLANET)

03 **Social analysis (PEOPLE)**

04 Economic analysis (PROSPERITY)

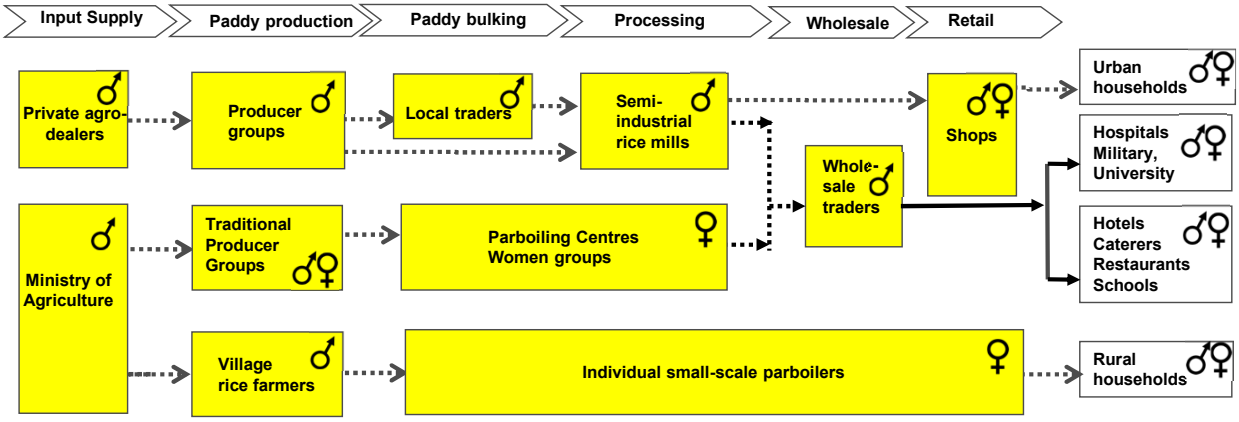
Social analysis (People)

Which issues deserve in-depth studies according to VC and consumer perspective?

Fields and tools of social analysis

- **Gender analysis incl. Youth employment**
  - Gender mapping
  - Gender makes Business Sense
  - Youth employment assessment
- **Poverty analysis**
  - Poverty assessment
  - Livelihood analysis
- **Nutrition**
  - Household Dietary Diversity Score
  - Individual Dietary Diversity Score
  - Food Insecurity Experience Scale (FIES)

Gender mapping, rice VC West Africa



Gender sensitive value chain analysis

Actors	Access to resources	Control of resources	Business linkages	Perceptions and beliefs	Laws and regulations
Female and male farmers **Producer groups, associations or cooperatives** **Male traders** **Female processors** **Female & male employees**	How did you get your land? How do you raise funds when you need them? How do you find clients? How to obtain reliable information on new techniques?	Who takes the decisions about your (farm) business? Who negotiates sales? Who sells and gets the payment? Who controls bank accounts	What direct business linkages do you have with suppliers, buyers, service providers What business linkages do you have with enterprises doing the same as you? How would you make these linkages stronger? What new business linkages would be interest for you?	Who ensures which activities in your business? What parts of your business are difficult for you because you are a woman/man? Are there any parts of your business that men/women are discouraged from doing?	What laws or policies prevent you from operating your business? What laws support you in running your business

For information on the approach ***Gender Makes Business Sense Plus*** >> Downloads - Agri-Business Facility for Africa
info@agribusiness-facility.org

Youth employment

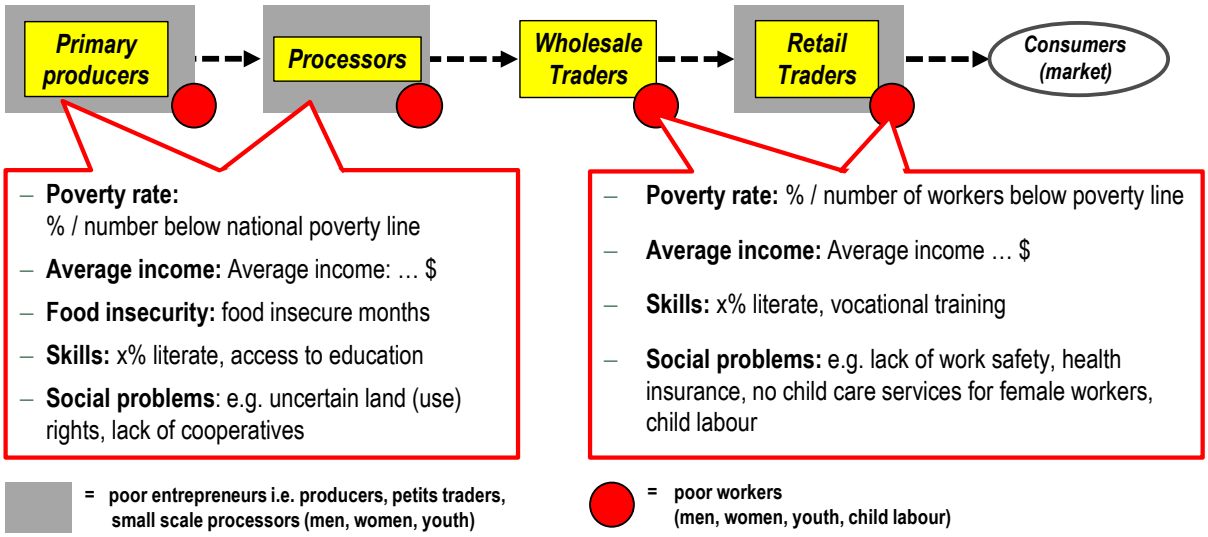
- Youth are on the front lines to build future food systems
- They bear risks from climate change, social and economic inequities, and political marginalization
- Agrifood systems provide a wide spectrum of opportunities for the engagement and employment of young people

Assessment of:

- Age structure of VC actors
- On-farm and off-farm employment of youth (agro-processing, trade, cooperatives and services) and quality of jobs
- Number of youth entering the labor market
- Quality of the education and vocational training system (qualification of youth, skills mismatch)
- Youth migration
- Factors hampering youth access to the VC e.g. access to land, capital

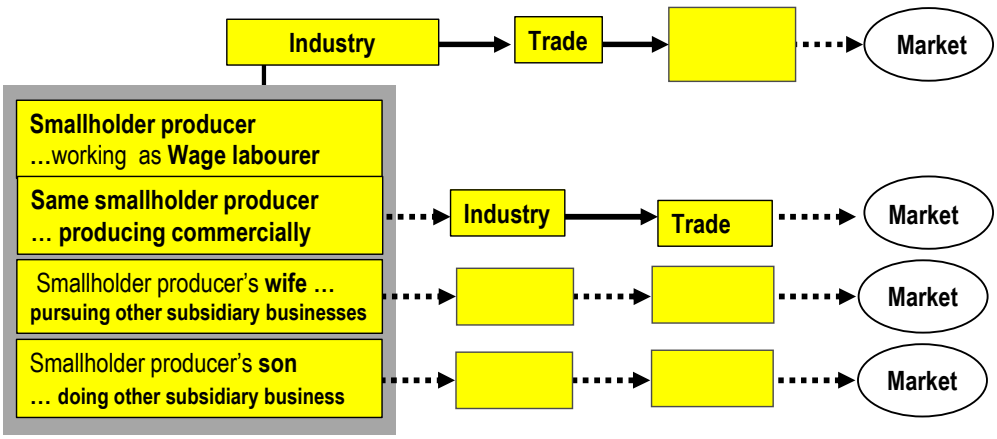
More under >> FCS, HLPE. 2021. Summary on Promoting youth engagement and employment in agriculture and food systems

Poverty assessment



Livelihood analysis

Different household members may contribute from different sources of income and different value chains to the livelihood



Particular constraints of poor producers, SME or workers

Lack of productive resources

- Limited availability / limited access to productive resources
- Lack of capital

Social sustainability

- Conflicts over the use of natural resources
- Lack of reserves, no savings
- Conditions of employment

Market failures affecting the poor

- Small scale transactions
- Weak professional organization
- High transaction cost & risk due to informality, unfavorable contracts
- Absence or low quality of services & products
- Excessive buyers' power weakens bargaining position of SME
- Vulnerability: exclusion of small suppliers in demand crises

AFS ensuring food security and health: Why?

Hunger and malnutrition still prevalent

- Increased income does not necessarily lead to better nutrition.
- Smallholder farmers, poor workers and urban dwellers are often not able to generate a decent income.
- Knowledge on healthy food and nutrition weakly developed
- Specialized commercial production can reduce diversity of food production for market and own consumption.

Hunger	*Chronic calorie deficit.*
Malnutrition	*Nutrient disequilibrium and micronutrient deficiencies*

Low environmental impact diets consistent with good health

Wide variety of foods eaten and balance achieved between energy intake and energy needs.

Very limited consumption of sugar, salt, snacks, confectionery, sugary drinks.

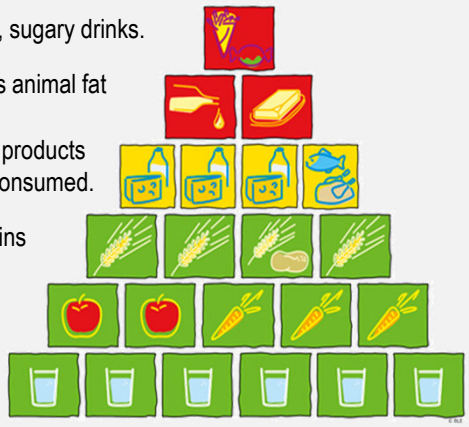
Little quantities of oil and even less animal fat

Dairy products in moderate quantities; Small quantities of fish and aquatic products from certified fisheries Meat in moderate quantities … all animal parts consumed.

Minimally processed tubers and whole grains

Legumes, fruits and vegetables – field grown

Tap water in preference to other beverages



https://www.in-form.de/wissen/ernaehrung/bzfe-ernaehrungspyramide

Source. adapted from FAO, FCRN. 2016. Plates, pyramids, planet Developments in national healthy and sustainable dietary guidelines: a state of play assessment

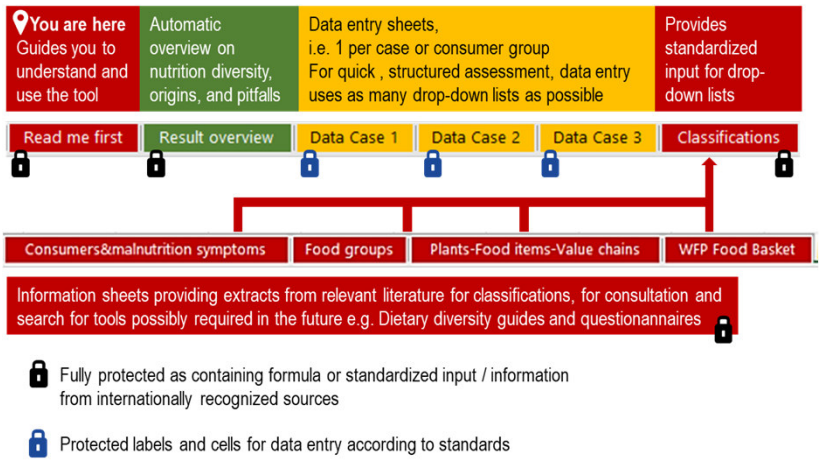
Excel-based Food Basket assessment *

Purpose:

- Structured and well-based assessment of a food basket of specific consumer groups / regions
- Prelude to assess/ select value chains

Excel file in your seminar download link

* Developed 2025 by Annemarie Matthess with contributions from Sarah Dib



Food basket tool: Case information & data

Country	*>> type country name*	Nigeria
Region / State / Province / Department	*>> type*	Lagos State
Specific location	*>> type if applicable*	Lagos - Makoko
Consumer group	*>> Use drop-down list*	Urban middle to high income (>100.000 inhabitants)
Type of consumers	*>> Use drop-down list*	All ages and genders
persons		**100.000**
Symptoms of malnutrition 1	*>> Use drop-down list*	Underweight
Symptoms of malnutrition 2	*>> Use drop-down list*	Nutrient deficiency

Data inserted are dummies to develop the data sheet
The majority of data entries builds on drop-down lists under the sheet classifications

Check these sheets >> before starting to fill the data case

Classifications | Consumers&malnutrition symptoms | Food groups | Plants-Food items-Value chains | WFP Food Basket

	Same food from different sources or types of processing								Food from one source or type of processing								
	Top food 1		**Top food 2**		**Top food 3**		**Top food 4**		**Top food 5**	**Top food 6**	**Top food 7**	**Top food 8**	**Top drink 1**	**Top drink 2**	**Top drink 3**	**Drinking water**	
Insert food item respectively drinks >> Sheet Plants-Food items - value chains may give you guidance	**Maize**	**Maize biofortified Provitamin A**	**Chicken meat**	**Chicken meat**	**Sweet potato**	**Sweet potato biofortified**	**Tilapia**	**Tilapia**	**Spinach**	**Cow pea**	**Mango**	**Cashew**	**Juices**	**Tea**	**Wine**		
Food group *>> Use drop-down list*	Grains	Grains biofortified	Poultry	Poultry	Roots & Tubers	Roots & Tubers biofortified	Fish or Seafood	Fish or Seafood	Dark leafy greens & vegetables	Pulses	Provitamin A-rich fruits	Nuts	Other fruits				
Nutrient group *Use drop down list*	Carbo-hydrates	Carbo-hydrates	Animal protein	Animal protein	Carbo-hydrates	Carbo-hydrates	Animal protein	Animal protein	Micro nutrients	Protein from plants	Carbo-hydrates	Fat from plants	Carbo-hydrates		Carbo-hydrates		
Degree of processing *) *>> Use drop-down list*	NOVA 1	NOVA 2	NOVA 3	NOVA 4	NOVA 1	NOVA 1	NOVA 1	NOVA 2	NOVA 1	NOVA 1	NOVA 1	NOVA 2	NOVA 1	NOVA 3	NOVA 4		
Type of processing *>> Use drop-down list*	Cooked	Baked	Grilled	Fast food	Cooked	Cooked	Grilled	Smoked	Steamed	Cooked	Dried	Toasted	Pressing	Infusion			
Micro nutrients	*>> insert below 1 if the top food is rich or biofortidied in specified micronutrients >> red cells will become green*												*>> insert 1 if the top drink contributes specified micronutrients*				
(Pro)Vitamin A		1				1					1		1				
Vitamin B12			1	1			1	1									
Vitamin C											1	1	1				
Iron							1		1	1							
Iodine									1								
Zinc		1				1											
Acquisition modes *>> Use drop-down list*	Own production	Food for work	Own production	Purchase with cash	Own production	Purchase with cash	Purchase on credit	Purchase with cash	Purchase with cash	Food aid	Purchase with cash	Purchase with cash	Purchase with cash	Purchase with cash	Purchase with cash	Purchase with cash	Purchase with cash
Supply sources	Locally produced	National reserves	Locally produced	Imported	Locally produced	Locally produced	Imported	Imported	Locally produced	Food aid	Locally produced	Locally produced	Locally produced	Imported	Imported	Locally produced against payment	Locally produced against payment
Water supply *>> Use drop-down list*																Bottle	Tap
Water quality *>> Use drop-down list*																Treated before reaching household	Treated before reaching household

Food basket tool: Automatic summary across cases

	Case 1	**Case 2**	**Case 3**
Country	Nigeria	Nigeria	Nigeria
Region / State / Province Department	Lagos State	Ondo State	Lagos State
Specific location	Lagos - Makoko		Lagos Victoria Island
Consumer group	Urban middle to high income (>100.000 inhabitants)	Rural poor incl. Subsistence (poverty line = 2,15 USD / day)	Urban low income (>100.000 inhabitants)
Type of consumer	**All ages and genders**	**Pregnant / lactating women**	**Adolescents**
Size of consumer group	100000	50000	200.000
Symptoms of malnutrition	Underweight	Underweight	Overweight
	Nutrient deficiency	Preg/lact.women: Low weight gain	Nutrient deficiency
Top foods	Maize	Maize	Maize
	Chicken meat	Chicken	Chicken
	Sweet potato	Sweet potato	Potato
Top drinks	Juices	0	Soft drinks
	Tea	0	0
	Wine	0	0
Nutrients			
Carbo-hydrates	7	2	3
Animal protein	4	1	1
Protein from plants	1	1	1
Fat from plants	1	0	4
Fat from animals	0	0	0
Fruits	1	0	0
Vegetables	1	1	0
Incidence of micronutrients			
(Pro)Vitamin A	4	0	0
Vitamin B12	4	1	1
Vitamin C	3	0	0
Iron	3	2	1
Iodine	1	1	0
Zinc	2	0	0
Biofortified grains	1	0	0
Biofortified roots & tubers	1	0	0
Biofortified pulses	0	0	0
Incidence of processed food (Nova 3)	2	1	3
Incidence of ultra-processed food (Nova 4)	2	0	2
Hygiene risks related to drinking water	0	1	0
Acquisition from market >> VC / bundles of VC (incl. drinking water)	**11**	**1**	**5**

More tools to assess nutrition

Primary data at affordable cost

- **General & specific nutritional behaviors, consumption patterns & deficits**
- **Access to different food types**
- **Food insecurity**

Household dietary diversity Score (HDDS)
Individual Dietary Diversity Score (IDDS)
HDDS IDDS guidelines. FAO. 2011

← Foods consumed the last **24 hours**
← Reflecting time bound access to a variety of foods

Minimum Dietary Diversity for Women (MDD-W)
MDD-W Guide; FAO. 2021

Food Insecurity Experience Scale (FIES)

← 8 survey questions
← covering **one year**

Secondary data on

- **Health** and **Nutrition status** e.g. height or weight for age of children, teeth, dietary status

The State of Food Security and Nutrition in the World 2024

Global Nutrition Report | Country Nutrition Profiles

Food Systems Dashboard

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Economic analysis (PROSPERITY)

Which issues deserve in-depth studies?

Which economic analysis?

Market analysis

- Production and domestic consumption
- Export and import figures

Income assessments

- Farm income, wages
- Profit calculations for other selected actors

Value-added along the VC

- Contribution of chain segments to total value generated

Assessing competitiveness

- Benchmarking of unit cost of production
- Benchmarking of labour and other factor productivities

Food market analysis

Import

- Importers, volumes, values
- Inputs critical for primary food production & processing
- Food raw material (e.g. grain for flour mills)
- Final product in bulk or for retail

Domestic Production

- Data / Importance of Production systems / regions, trade
- VC stages & operators
- Options to produce / substitute input or raw material locally

Domestic consumption

Domestic reserves

Export

- Type of food market (regional, international, countries)
- Domestic export operators, volumes & values
- Types of product exported (fresh-final, fresh-raw material, processed-final or intermediate)

Information sources on international trade

ITC TRADE MAP

■ Anonymous User (free) ◆ Registered User (free) ● Registered Users (subscription)

Trade in services data ■◆●

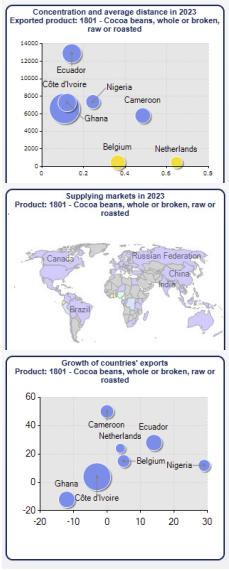
Yearly ■◆●, quarterly◆● and monthly ◆● trade data on import & export values, volumes, growth rates, market shares■◆● from the most aggregated level to the tariff line level ◆●

220 countries and territories; 5300 products (Harmonized System) ■◆●

Directory of importing and exporting companies ●

Tables & maps, and other tools ●

https://www.trademap.org/Index.aspx >>Subscription Options and Fees



Other ITC Tools	More
Market Access Map	
Investment Map	
Sustainability Map	
Trade Competitiveness Map	
Procurement Map	
Export Potential Map	
Market Price Information	
ITC Market Analysis Portal	
Rules of Origin Facilitator	

Value generated … Value added

Value generated by the VC or VC stages

- = Price*volume of product sold
- = Output

Value added
captured in one VC stage
- Wages
- Interests and rents
- Depreciation
- Direct taxes
- Profit

→ **Remuneration of production factors + taxes**

Cost of other inputs & services
- Inputs, equipment
- Energy, water
- Operational services

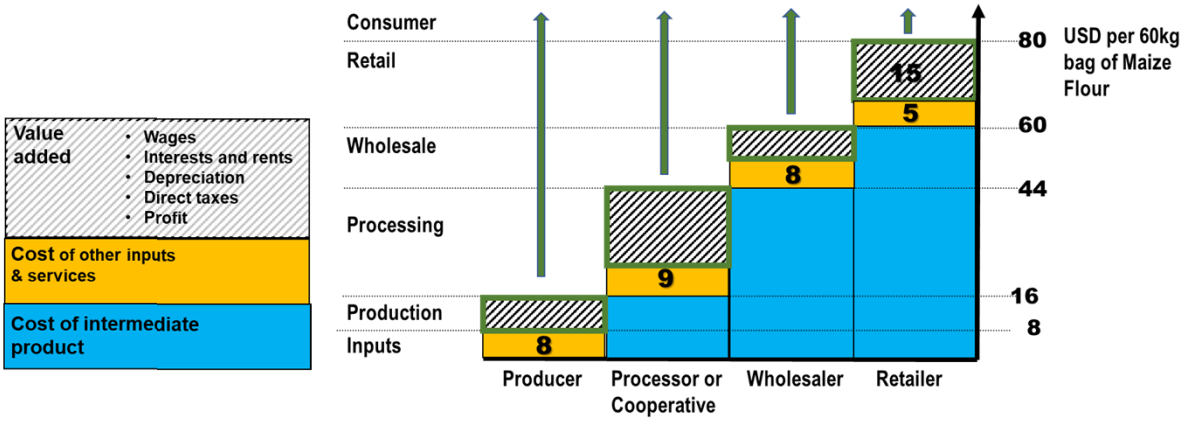
→ **To be paid to providers and suppliers**

Cost of intermediate products
- Raw material, semi- finished or
- Traded product (depending on VC stage)

→ **To be paid to suppliers at the previous stage**

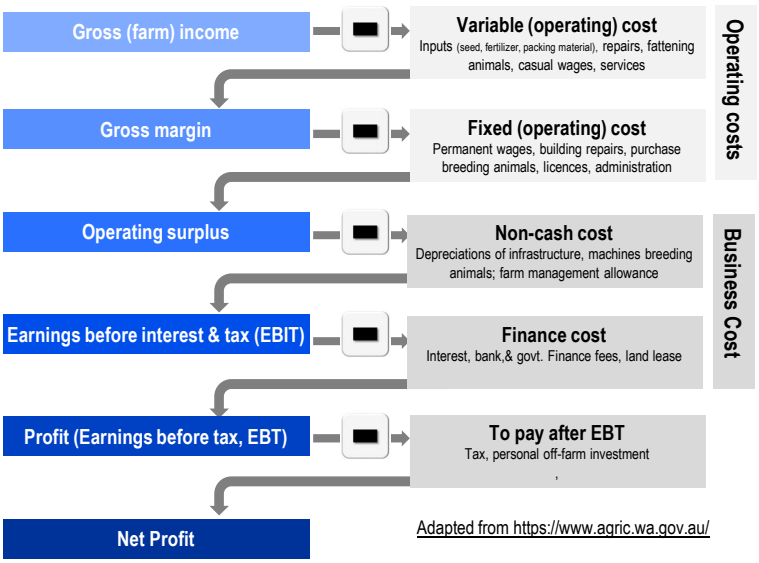
Value added calculation

Total value added = [in USD / 60 kg bag] 8 + 19 + 8 + 15 = 50



Assessing competitive advantage, dates Algeria

Income, profit & cost types



Adapted from https://www.agric.wa.gov.au/