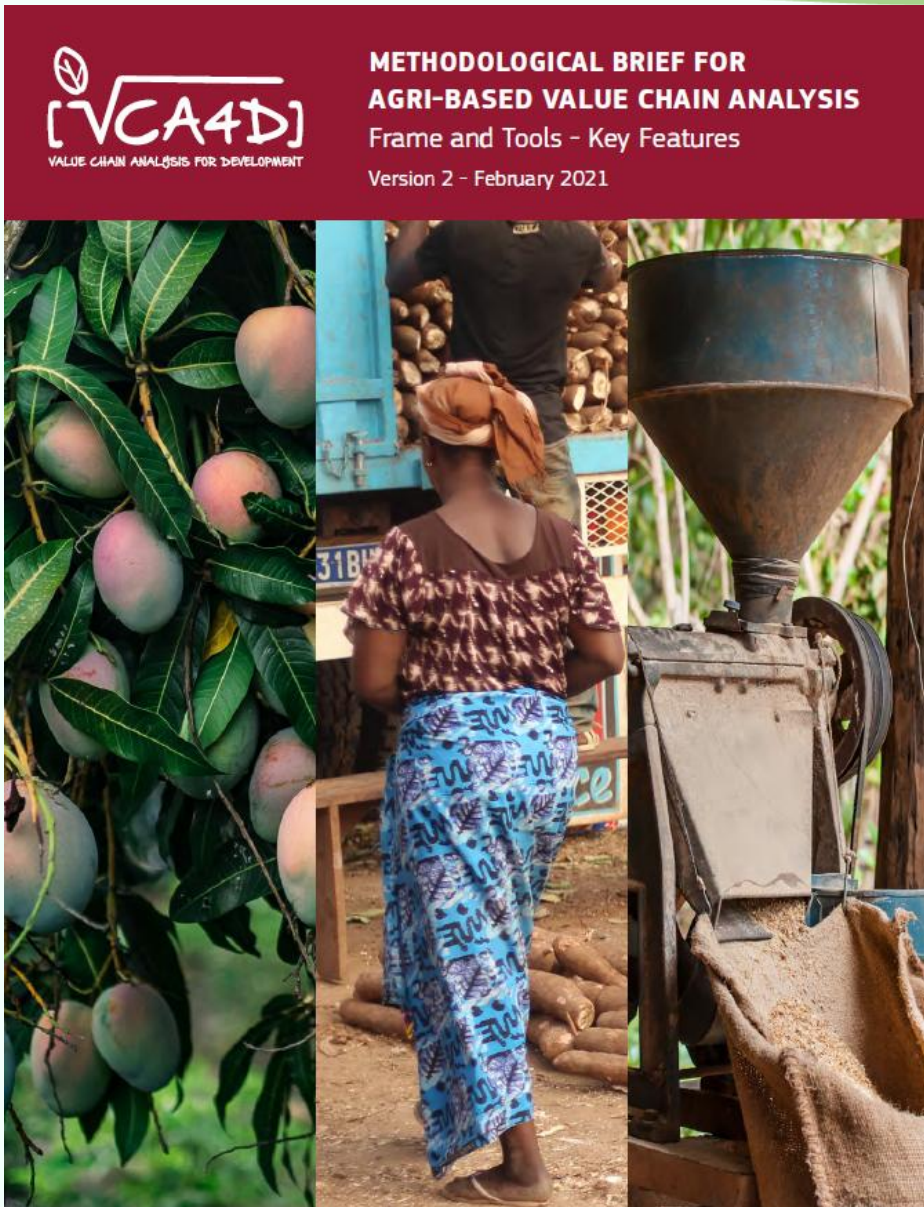
VALUE CHAIN ANALYSIS FOR DEVELOPMENT

Rational of Methodology

agrinatura for European Commission



Why Value Chain Analysis ?

VALUE CHAIN

Sequence of productive actors that supply a specific good to the domestic and/or export market

VCs are major channels for agricultural development due to their capacity to generate incomes and jobs

Operational framework for engaging with farmers and businesses through investment and policies in an inclusive ans sustainable way

Need to know more about Value chains

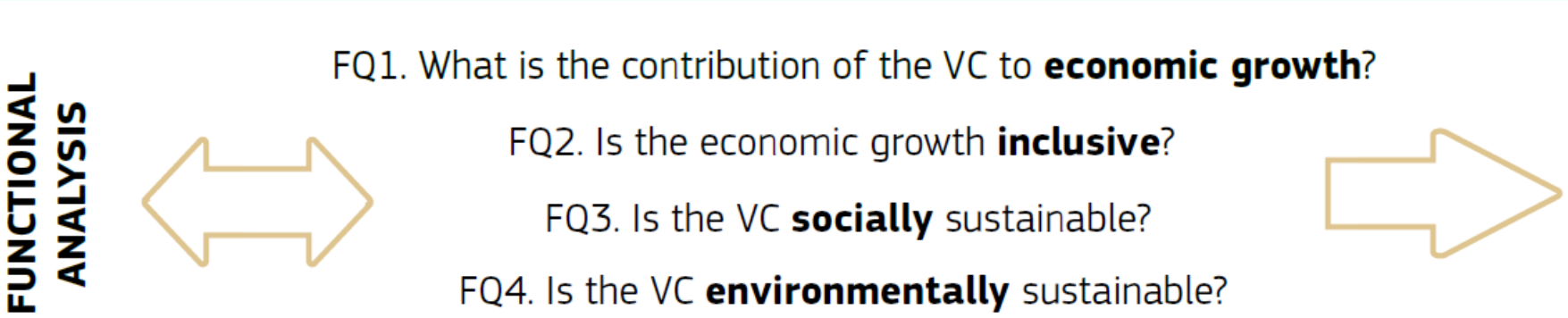
Value Chains Analysis supports decision- makers

What is the VCA4D Methodology?

- Toolbox
- Quantitative approach
- Robust information

The VCA4D Analytical Framework

Sustainable Development



to give a picture of the value chain

The analytical process is 3-fold:

- Functional analysis
- Economic, social and environmental analyses to respond to the 4 FQ
- Synthesis

Framing Question

Core Questions

Indicators Themes

Structure of the VCA4D investigations

FRAMING AND CORE QUESTIONS

Economic Analysis	Social Analysis	Environmental Analysis
FQ1. What is the contribution of the VC to economic growth?	**FQ3. Is the VC socially sustainable?**	**FQ4. Is the VC environmentally sustainable?**
CQ1.1. How **profitable and sustainable** are the VC activities for the actors involved?	CQ3.1. Are **working conditions** throughout the VC socially acceptable and sustainable? Do VC operations contribute to improving them?	CQ4.1. What is the potential impact of the VC on **resource depletion**?
CQ1.2. What is the contribution of the VC to the **GDP**?	CQ3.2. Are the **land and water rights** implemented throughout the VC socially acceptable and sustainable?	CQ4.2. What is the potential impact of VC on **ecosystem quality**?
CQ1.3. What is the contribution of the VC to the **agriculture sector GDP**?	CQ3.3. Throughout the VC, do actors foster and put into practice **gender equality**?	CQ4.3. What is the potential impact of the VC on **human health**?
CQ1.4. What is the contribution of the VC to the **public finances**?	CQ3.4. Do VC operations contribute to upgrading and securing the **food and nutrition conditions**?	CQ4.4. What is the potential impact of the VC on **climate change**?
CQ1.5. What is the contribution of the VC to the **balance of trade**?	CQ3.5. Is **social capital** enhanced by VC operations and equitably distributed throughout the VC?	CQ4.5. Does the potential impact of the VC on **biodiversity** deserves specific studies?
CQ1.6. Is the VC **viable in the international economy**?	CQ3.6. Do the VC operations contribute to improving the **living conditions** of the households through acceptable facilities and services?	
FQ2. Is this economic growth inclusive?		
CQ2.1. How is **income distributed** across actors of the VC?		
CQ2.2. What is the **impact of the governance systems on income distribution**?		
CQ2.3. How is **employment distributed** across the VC?		
Addressing the 4 Framing Questions		
Cross-cutting CQ. Which **risks** may affect the performance of the VC?		

Important clarifications Purpose

- *The VCA4D method delivers select information on major impacts of the VC activities, but is not a thorough study on all aspects of the VC.*
- *VCA4D studies inform on the impacts generated inside the country. When deemed necessary, they may be supplemented with an analysis of activities taking place beyond the borders of the country.*
- *The value chain analysis (VCA) provides a picture of the VC for a given year. VCA4D can be mobilised later on for updates to assess the evolution of the VC in the various domains.*

- *A selection of indicators provides a genuine basis for answering the Core Questions by evidencing hard facts in a quantitative way. Because they inform on key processes or state of affairs, these indicators are crucial for decision makers. They contribute to shape a consistent framework for analysis and allow to compare situations and*
- *Orders of magnitude are often more important (and easier to capture) than very precise figures. They are usually sufficient for decision-making. Moreover, numbers with several digits make reading more difficult, and are pointless considering the statistical uncertainty of most results.*

- *The experts' time is limited. They must carefully decide on which data is most important so as to focus on the most relevant aspects for the decision makers and not to lose time collecting information that will not significantly improve the results.*
- *At an early stage they must appraise the status of the secondary data, statistics and other information at hand. Then they have to arrange for collecting information during missions; conducting additional surveys if necessary; and identifying and training of national experts, students, or surveyors involved in the study whenever appropriate.*

- *To be effective, the multidisciplinary team has to work in an integrated way and with a collaborative mindset.*

- *In their conclusion, the experts may call for relevant complements to their work, e.g. technological benchmarking of some stages of the chain, targeted agronomic diagnosis or further understanding of the stakeholders' interactions with territorial authorities.*

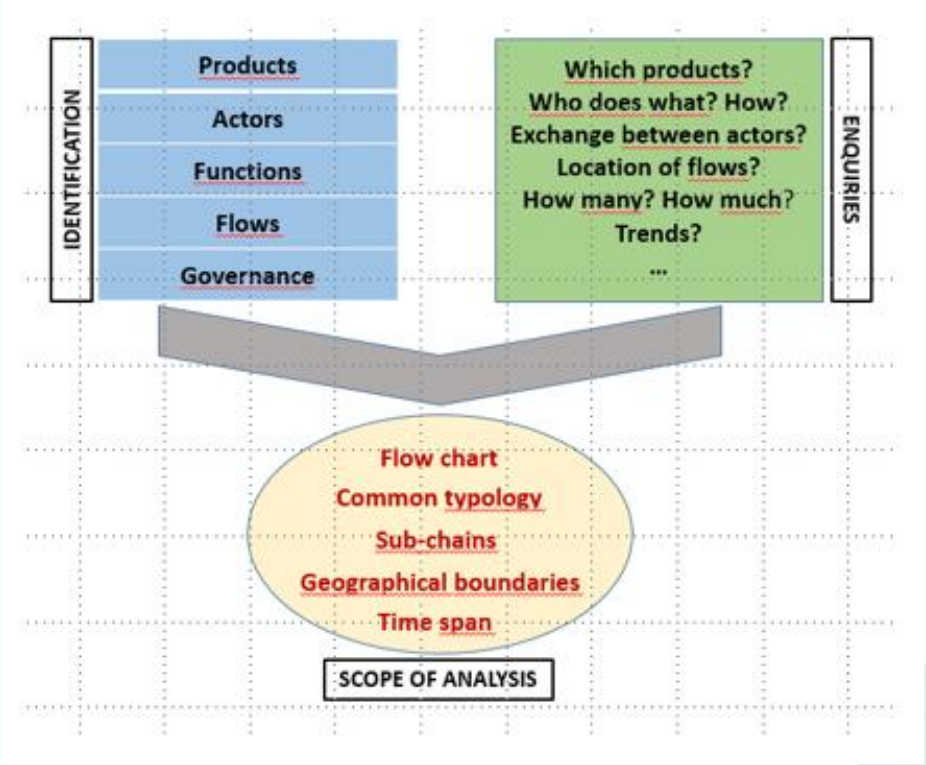
A starting point: the Functional Analysis

Overall understanding of how the VC is organized and how it operates

- General description of the VC
- Technical diagnosis
- Understanding the governance

Strategic picture of the VC
→ SWOT matrix

Overview of the functional analysis



Important clarifications
Functional Analysis

- *In practice, for studies of a fruit and vegetable value chain falling into the remits of its action, COLEACP (www.coleacp.org) will provide information on:*
  - *Market trends on national, regional and international markets, combining analysis of publicly available data and own market insights;*
  - *The main data sources;*
  - *Useful complementary elements or sources.*

- *VCA4D studies examine the operations of the VC only within the country, even when (part of) the VC production is exported.*
- *Systematically applying the same methodological format to all studies, allows for comparisons and better clarity for national decision makers. It also makes it possible to remain within the resources available for the studies (time and cost).*
- *However, when deemed necessary, the experts may complement the economic and environmental analyses of the in-country segments of the VC with a rapid investigation on the foreign segments. These elements then serve as a complement to the standard analysis.*

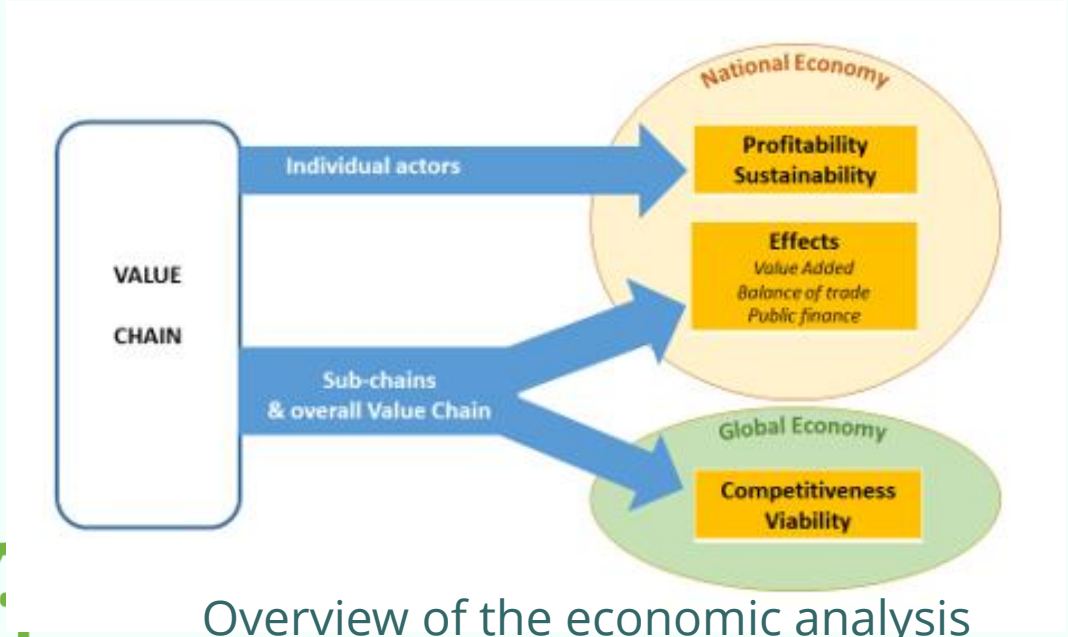
- *In view of preparing for further work, the team must keep in mind that the higher the level of detail (e.g. a detailed typology of the actors), the greater the amount of data needed (on the technological processes, quality of the product, costs, flows, etc.) and the ensuing level of resources required (time, logistic support...).*

What is the contribution of the VC to economic growth?

Incomes generated by the value chain

Whose benefits?

→ Different levels



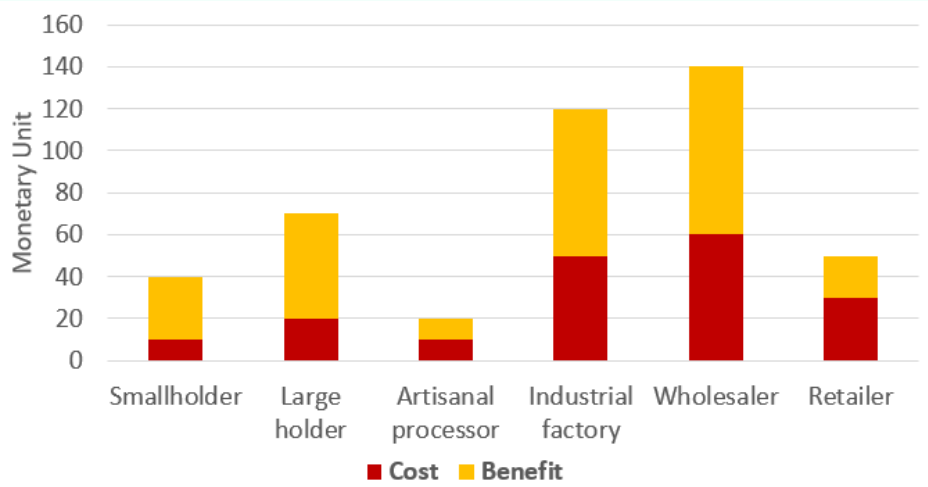
Overview of the economic analysis

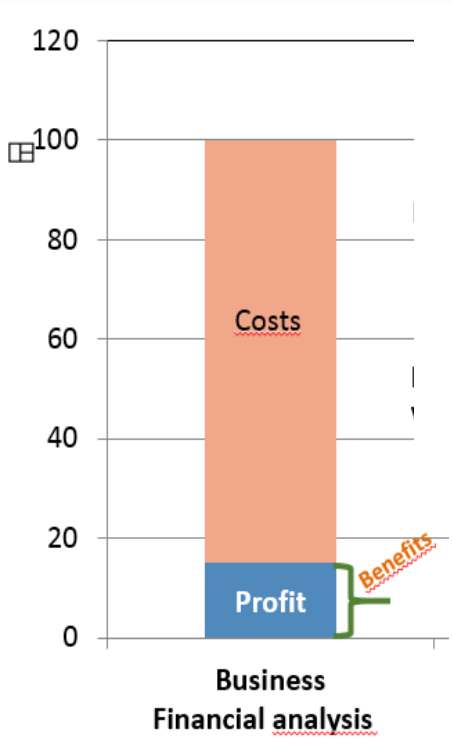
Financial and Economic Analysis

What is the contribution of the VC to economic growth?

- Profitability for every type of actors along the VC

Costs and private benefits



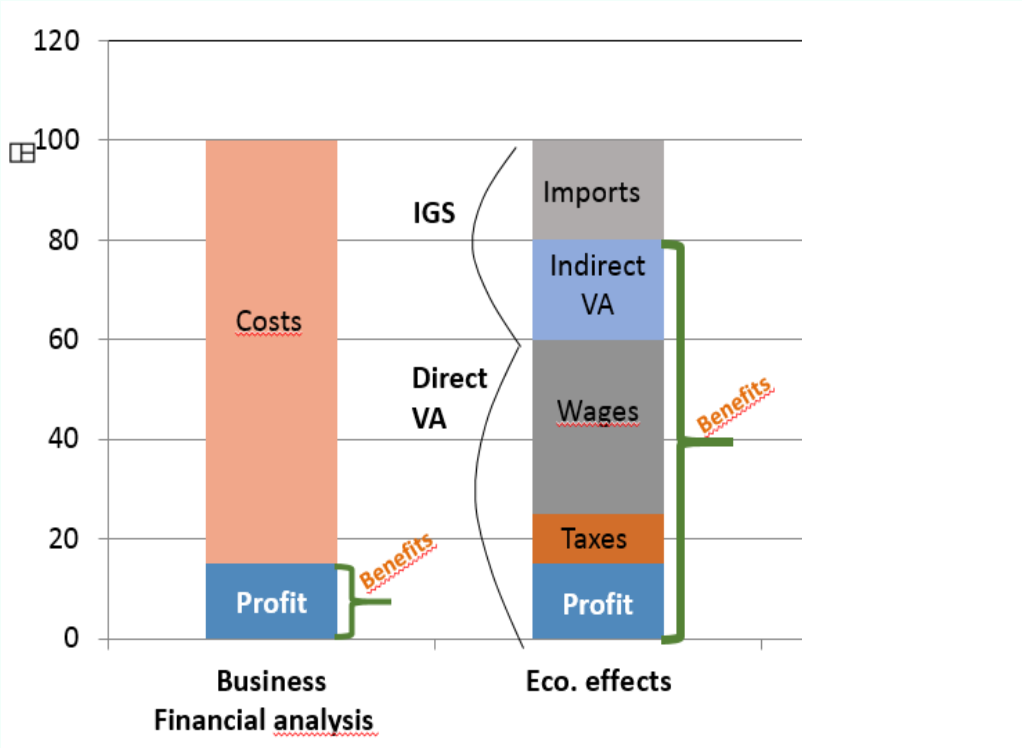


Financial and Economic Analysis

What is the contribution of the VC to economic growth?

- Profitability for every type of actors along the VC

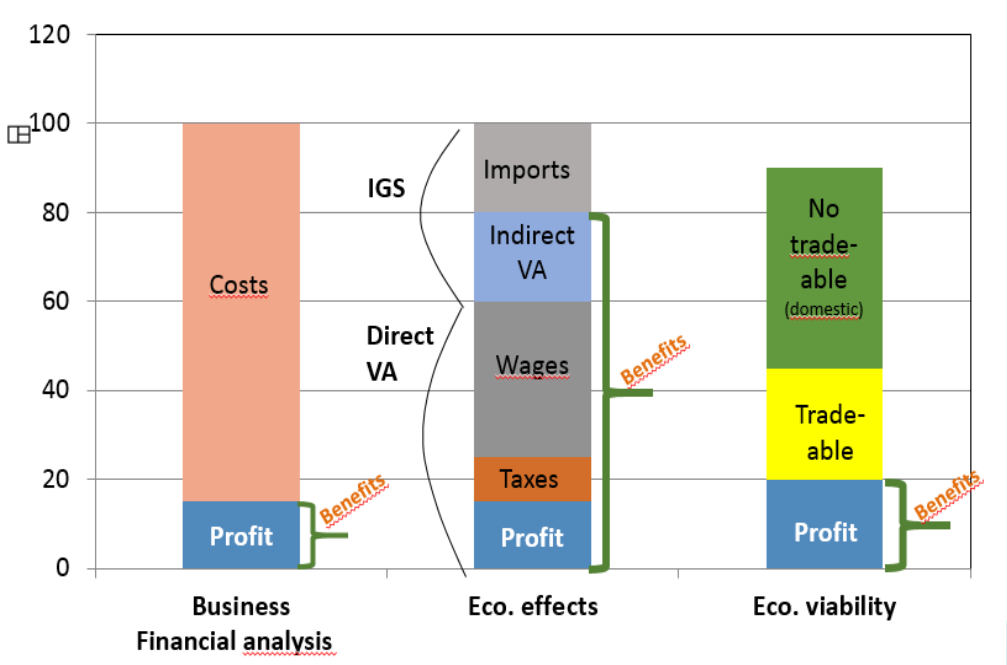
- Overall effects of the VC in the national economy
  - Value Added / Imports
  - Contribution to GDP
  - Impact of the VC on the balance of trade
  - Impact of the VC on public finance



Financial and Economic Analysis

What is the contribution of the VC to economic growth?

- Profitability for every type of actors along the VC
- Overall effects of the VC in the national economy
- Sustainability and viability of the VC within the international economy



Financial and Economic Analysis

Important clarifications
Contribution to Growth

Software for the economic analysis

*The economic calculations can be done using spreadsheets or an existing software such as **AgriFood Chain Analysis** (AFA, developed by Cirad).*
The AFA software facilitates the systematic organisation of physical and economic data. It ensures coherence, e.g. to ascertain that physical supplies and utilizations are balanced or that prices used are consistent. It automatically calculates indicators (financial profitability for the actors, direct value added at sub-chains and whole chain levels, total effects, sustainability within the international economy). It can easily test different sets of prices, make sensitivity analysis, and facilitate comparisons and simulations. This software also operates as an information system to store data.
It requires an initial training for using it.

The CARD tool to anticipate climate change impact

Evaluating financial sustainability of farms involves questioning their capacity to face climate change consequences. The Climate Adaptation in Rural Development assessment tool (CARD) developed by IFAD enables easy access to crop yield projections for 17 major annual crops in 54 African countries up to 2050. For every crop, this simple tool allows to select the regions or agroecological zones, rainfed or irrigated cropping, and three levels of risk. Testing the operating account with these yield projections allows to get a sense of the impact of climate change on the farmers' position in the future.
CARD is based on the IPCC modelling RCP8.5 scenario which projects the highest concentration in greenhouse gas and global warming.
The CARD Microsoft Excel file can be downloaded from https://www.ifad.org/en/web/knowledge/publication/asset/41085709

- *Precision of data and computation: the economic analysis must not focus too heavily on measuring with an absolute precision, which requires time for collecting detailed data. Decision makers only use orders of magnitude.*

- *Computing Indirect Value Added and Indirect Imports is only required for the very few intermediate consumptions that amount to a substantial share of the total production value. Only those sizeable IC significantly alter the order of magnitude of the Total VA and Total Imports.*

Is this economic growth inclusive?

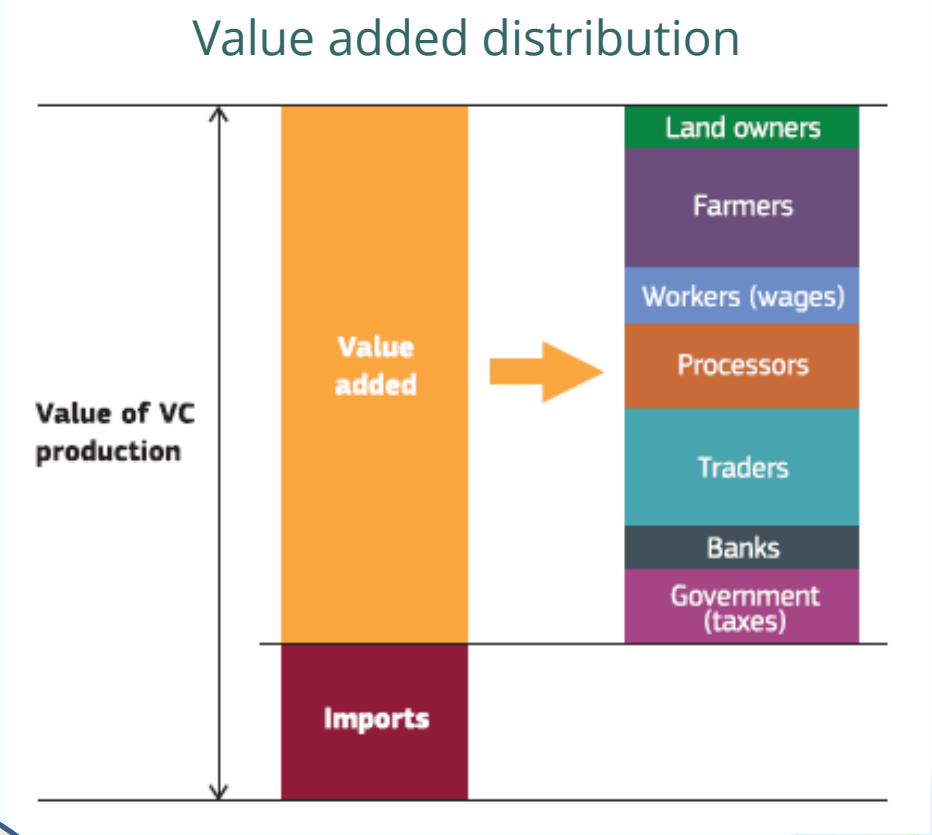
How the generated growth is benefiting the different population groups, businesses and institutions

Overview of the analysis of inclusiveness

Economic Analysis
Social Analysis

Is this economic growth inclusive?

- Income distribution
- Employment creation
- Marginalized groups
- Impact of the organisation on poverty alleviation



Economic Analysis
Social Analysis

Important calrifications Inclusiveness

- *National VCs that export commodities are part of larger international value chains with final consumption abroad. The exported VC product can be processed abroad. When this commodity is the major component of the final consumer good (as in the case of tea, coffee, cocoa, cotton for garment, "ethnic" merchandise, etc.), a rough estimate of the share of the farm gate price (or FOB export price) in the final consumer's price gives an indication of how the value is distributed along the chain. It draws attention to the negotiating power of the national VC. It also gives a hint on the stake of developing downstream processing or trading activities. A specific study may be recommended when deemed necessary.*

- *When used for the economic analysis, the software AFA calculates the distribution of incomes and provides support for reckoning the jobs.*

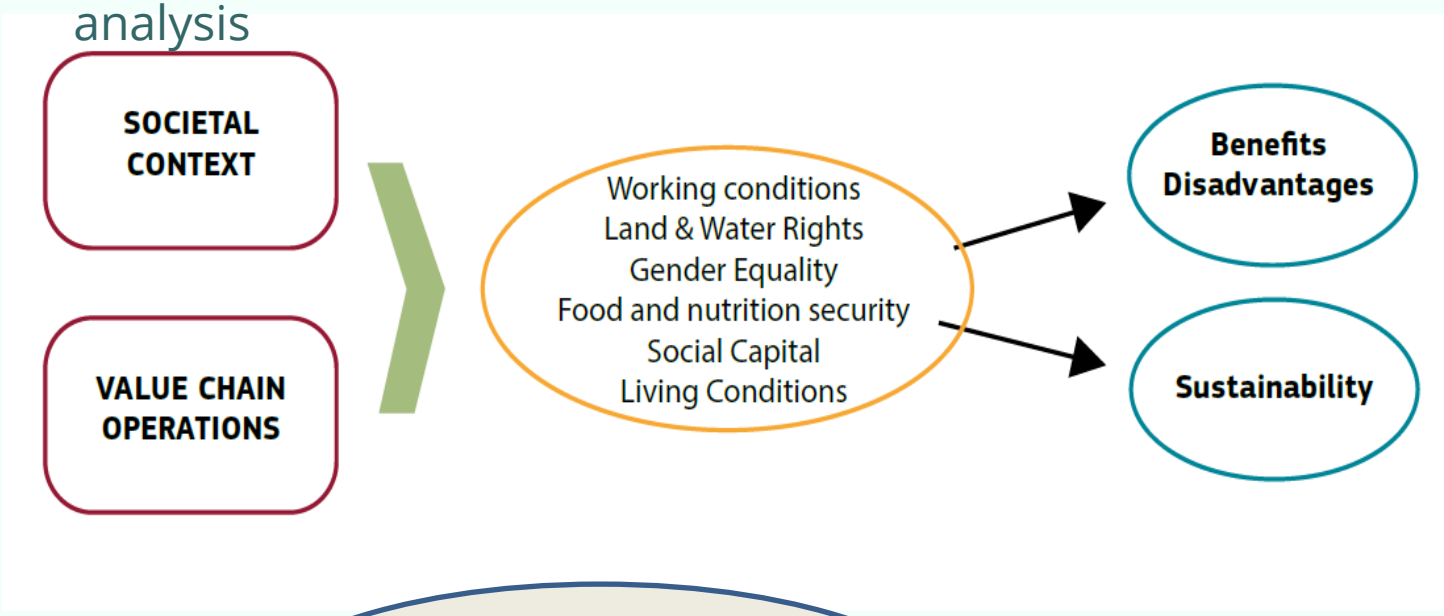
- *Beyond the outright income measurement of farmers and MSMEs based on their Operating Profit, the precariousness of their situation is assessed in the analysis of their financial sustainability, including the possible impact of Climate Change (see ICARD box in chapter 3 on FQ1).*

- *Portraying income, employment and social benefits of small-holders, women, youth or specific marginalised groups helps to put things into perspective (balancing benefits and shortcomings, taking trade-offs into account...). For instance, a VC with a high female labourers participation may in fact be unfavourable to women if they are underpaid. (see CARD box in chapter 3 on FQ1).*

Is the VC socially sustainable?

Insight on 6 domains

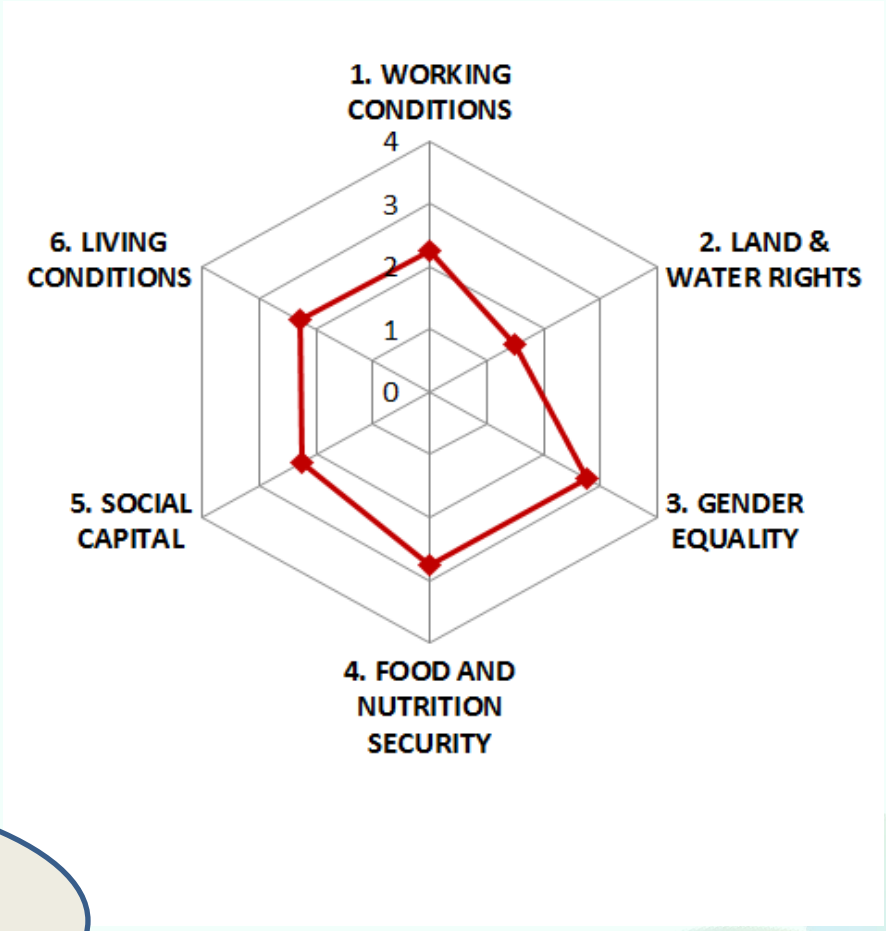
Overview of social analysis



Social Analysis

Is the VC socially sustainable?

- Scoring 63 qualitative questions
- Pointing out and analysing opportunities, constraints, impacts, and risks
- Complying with standards



Social Analysis

Important clarifications
Social Sustainability

- **Health hazards**. *The social expert must inquire about the working conditions in the VC, which encompass job safety and the exposure of children to unsafe practices. As the environmental expert is also in charge of looking after the overall human health impact of the VC, they both share the responsibility of detecting health risks through their visits and data collection (interviews, surveys, secondary documents…). Adverse exposure may happen at all steps of the VC, but frequently in some agricultural activities (chemical use with poor body protection…) or processing facilities (insane atmosphere, harmful manoeuvres…). The social and environmental experts thus present their findings together when tackling the "Working Conditions" domain of the Social Profile and the Human Health impact section of the FQ on environmental sustainability.*

- *Whenever relevant, the common typology agreed upon (see Functional Analysis) should serve as a reference for organising the investigative work and for presenting conclusions. Nevertheless, some types of actors may be disaggregated or aggregated if appropriate, particularly for benchmarking.*

- *The report should broadly review every domain rather than lengthily answer every question. In each domain it should emphasize the critical points that require attention.*

The Social Profile tool

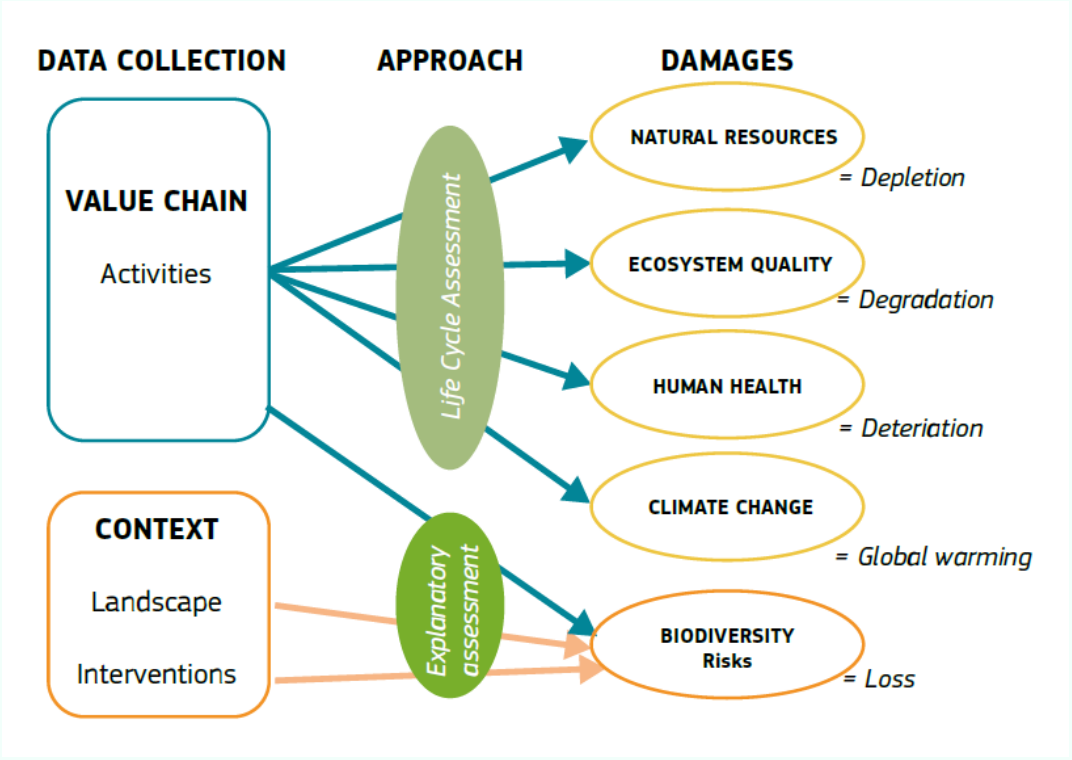
The Social Profile is a tool built by DEVCO on a spreadsheet. It includes a series of straightforward questions for each of the 6 domains to help the data collection and the analysis of the situation. This tool is provided to the social expert.

The Social Profile is based on a process of simple scoring that facilitates the expert's judgement. It produces a graphic representation in the form of a "Radar chart" which sums up the diversity of information and scores in order to enhance the communication towards decision makers. Moreover, it showcases clearly the evolution when a new study of the same VC is done.

Is the VC environmentally sustainable?

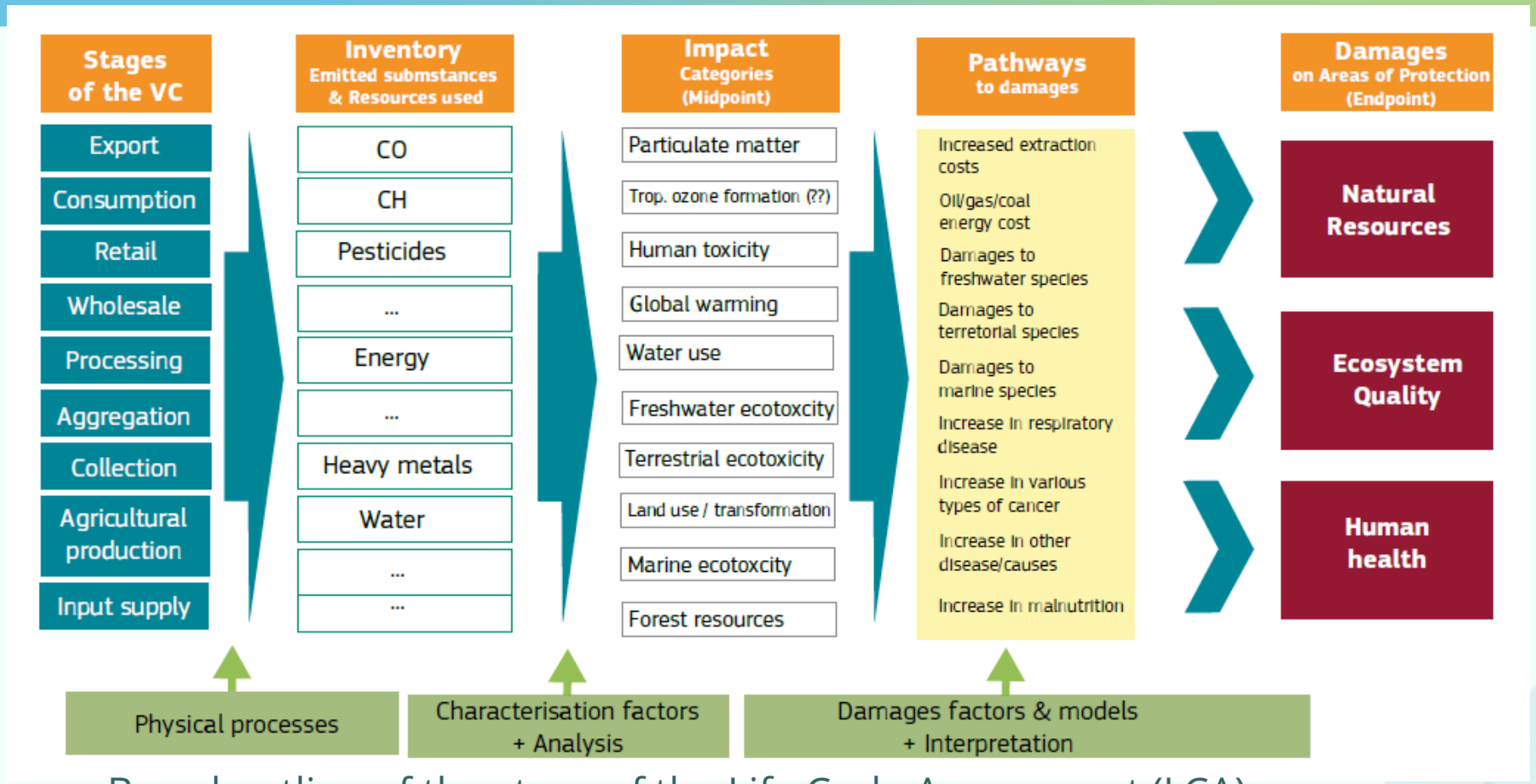
Damages, benefits and risks

Overview of environmental analysis



Environmental Analysis

Is the VC environmentally sustainable?



Broad outline of the steps of the Life Cycle Assessment (LCA)

Environmental Analysis

Important clarifications Environmental Sustainability

- *The analysis provides information on the environmental impacts and damages due to activities inside the country. In case the investigation encompassed activities beyond the national border, the experts must present the results regarding the domestic activities separately.*

Using LCA software for environmental analysis

Life Cycle Assessment is done by using specific software. The SimaPro software appears to be both convenient and largely shared among the community of LCA analysts in the tropical agriculture sector. It has thus been selected for use by the VCA4D teams but other software may be utilised if compatible with the information system that will store data and results in a standardised way for future reference and comparison.

- *LCA reports presents standard graphics that require explanation to non-specialists. The meaning of significant indicators and the consequences on the three areas of protection must always be clearly stated with simple words with a view to help understand the environmental impacts at stake.*

- *Both the environmental and social experts share the responsibility of detecting risks to health through visits and data collection (interviews, surveys, secondary documents...). The former collects information on practices as much as on molecules and quantities used. The latter inquires on the working conditions (Social Profile, see Chapter 5) which include job safety, the workers' protection and particularly the exposure of children to unsafe practices.*

- *As cropping systems are complex (multiple roles, products, technologies) with a large diversity of sophisticated practices (e.g. intercropping or agroforestry schemes) they embed a series of agronomic processes that LCA cannot grasp easily.*
  On the other hand, some of the environmental damages foreseen imply (long term) consequences for the cropping systems, for instance on soil fertility or pest development. This is due to complex cycles (e.g. Carbon, Nitrogen, etc.) and interactions (Soil X Biodiversity X Climate X Practices). They may be out of reach in the environmental expert' work but a thorough agronomic diagnosis would trace them.
  In both cases, when important agronomic outcomes that would broaden the direct LCA results are suspected, the environmental expert may recommend specific studies.

Synthesis & Recommendations

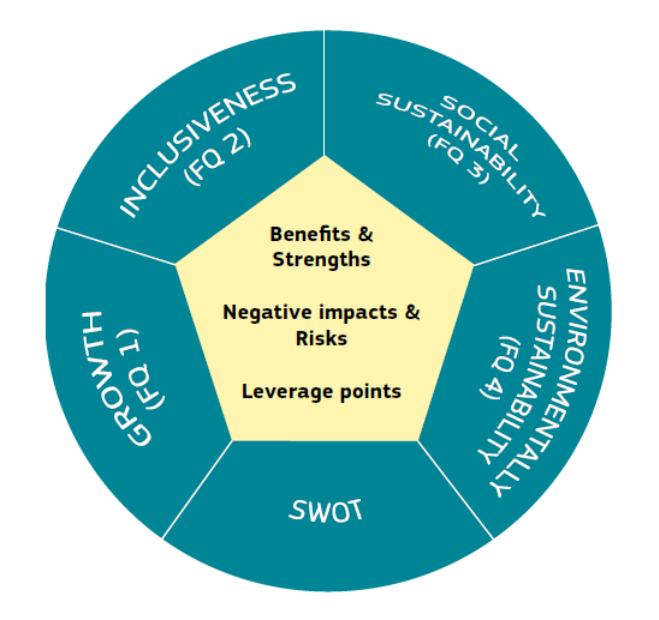
Answering the framing questions

The risk analysis

Summing up benefits and negative impacts

Recommendations

Overview of the synthesis



Risk description	Growth	Inclusiveness	Social sustainability	Environmental sutainability
Decrease of international prices with the entry of new suppliers				
New high quality norms on international markets (carbide use)				
Packaging material shortage				
Unresolved and deteriorating conflicts over land				

Low | Moderate | High | Extreme

Important clarifications
Synthesis & Recommendations

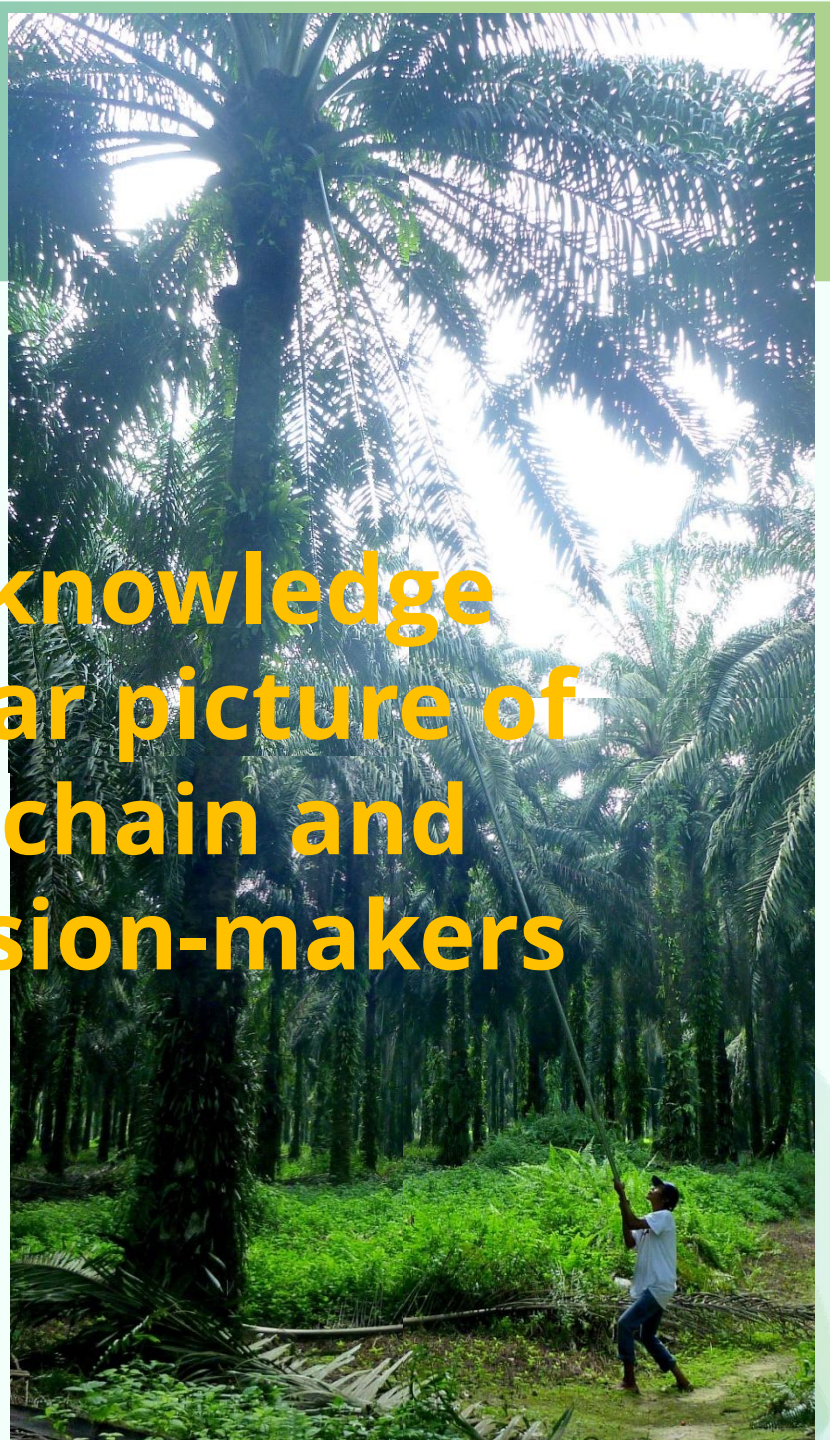
- *Conclusions must be clearly outlined and written in accessible language, so as to be understood by all stakeholders and easily used by decision makers.*
- *Full reports and informative public briefs are made widely available.*

- *Experts are invited to appraise the availability and quality of the main data sets upon which the main conclusions were built. They can communicate accordingly on the level of confidence attributable to their conclusions by reflecting on the following criteria:*
  - *representativeness: related to diversity (technologies, spatial distribution),*
  - *time period,*
  - *completeness,*
  - *reliability.*

- *Appraising impacts requires consideration of their relative importance for actors and at a more aggregate level (regional, national...). For instance, the benefits or costs associated with a minor crop in the household or regional economy do not entail the same consequences as if they would apply to dominant activities.*

VCA4D

Providing knowledge to give a clear picture of the value chain and inform decision-makers



Share of data collection and analysis between experts

ECONOMIST

Governance (coordination, policies…), income distribution, employment, inclusiveness, vulnerable groups…

Practices of actors
Technical coefficients
Environmental policies…

Scope of the study
General description of the VC (flows/volumes, activities, etc.)
Typology of actors
Subchains
…

SOCIAL EXPERT

Health risks
Practices and perception/ risks for biodiversity …

ENVIRONMENTAL EXPERT

Working with a common typology to give a global picture does not prevent to disaggragate (or aggregate) types if appropriate