

# Management advising to very small family farming enterprises



# GUIDE

2019 Edition

MORE THAN 25 YEARS OF LEARNING IN 24 COUNTRIES: ANGOLA - BENIN - BRAZIL - CAMBODIA - CONGO - DR CONGO - FRANCE / MAYOTTE - GABON - GUINEA BISSAU - HAITI - INDIA - INDONESIA - IVORY COAST - LAOS - MADAGASCAR - MAURITANIA - MOROCCO - MOZAMBIQUE - NIGER - SAO TOME E PRINCIPE - SENEGAL - SRI LANKA - TUNISIA - VIETNAM

# Agrisud: fighting poverty through enterprise

Agrisud is an International Charity and Solidarity Organization, involved in economic and social development of the Southern countries since 1992.

**Our mission:** helping poor people to access the local market through the creation and reinforcement of very small family farming enterprises (VSEs). These VSEs are viable, sustainable businesses because they are cost-efficient and agroecological, because they are well-established on the markets and on their territory, and because the entrepreneur has been supported throughout a professionalization process from poverty to autonomy. These actions contribute to food security for the families - in quantity and quality - and to the supply of local markets, in an environmentally responsible manner.

## Since 1992, Agrisud's achievements have been:

- 67,230 VSEs supported in 24 countries
- 236,800 sustainable jobs created
- 510 local organizations reinforced
- 633,300 people taken out of poverty

## Focus on 2018 results:

- 13 countries of intervention in Africa, Asia, South America and the Caribbean, and France
- 231 collaborators (head office: 7 people)
- 44 operational partners from the North and from the South
- 32 ongoing development programs
- 4 million Euros committed from public and private funding
- 8,130 VSEs supported

## And, for all VSEs supported since 1992:

- 403,000 tons\* of food produced
- 104 million Euros\* of net revenues generated
- 32,500 tons\* of carbon sequestered

\*for the 67,230 VSEs

## The main organizations contributing to Agrisud's experience in management advising are:

**Angola:** AADC  
**Cambodia:** Agricam, READA, SRER Khmer  
**Congo:** Agricongo, AGRIDEV, FJEC  
**DR Congo:** Café Africa International, CAPM, CRAFOD, SYDIP, UGMK, VVV  
**France:** CARI, CERFRANCE, CIRAD, Nitidæ, France Volontaires, Hom&Ter Development, IFAID, IRD, Lycée Agricole de Blanquefort  
**Gabon:** IGAD  
**Guinea Bissau:** SWISSAID  
**Haiti:** GRADIMIRH, OPPESE, OXFAM Veterimed  
**India:** HARC, HRDI, Rajiv Gandhi Foundation  
**Indonesia:** IDEP  
**Ivory Coast:** UC  
**Laos:** LWU, GCDA, PAFO, SAEDA  
**Madagascar:** AIM, AMADESE, APDRA, CARE Madagascar, CITE, CTHA, CHTH, Ilofosana Center  
**Mauritania:** CRM  
**Morocco:** AMAID, Cœur de Palmier, Norsys Foundation, ORMVAO  
**Niger:** AGRIDEL, EAN, RAIL  
**Sao Tomé e Príncipe:** CEPIBA  
**Senegal:** CPAS, FEGPAB, JAPPOO Development  
**Sri Lanka:** Department of Agriculture Trincomalee  
**Vietnam:** PNHL

*The method and related tools in this guide derive from Agrisud's experience built up with its partners, gained beside the producers and their organizations, in its various intervention fields. All illustrative pictures were taken on these same locations.*

*This guide is also available for free download in PDF format on the site [www.agrisud.org](http://www.agrisud.org)*

## Editorial



In his following preface, Henri Rouillé d'Orfeuil reminds us the leading role of family farming. It represents 70% of the world food production and contributes - undoubtedly better than any other form of agriculture - to addressing at least two major challenges: feeding 7 billion people while sustainably managing the planet's natural resources. Moreover, it provides decent work to more than a third of humanity, reinforces the coherence of the social fabric, stimulates the territories and slows down rural exodus.

Family farming thus plays a crucial part, but it also faces numerous constraints: land degradation, competition for the land, the effects of climate change, competition from imported products... These constraints weaken the conditions of production and of market entry, and increasingly deprive family farming of sources of income.

If the growth of the population and consequently of the food demand is put in perspective, we comprehend the need to make much more efforts towards the said family farming. These efforts must come not only from officials, but also from public and private, local and international development stakeholders to help growers to produce and sell in a profitable, sustainable manner.

In the last 25 years, Agrisud has been fervently supporting family farming. Our mission: helping deprived people access the local market through creation of Very Small family farming Enterprises (VSEs) that are viable and sustainable, and well established in the local markets. In this way, Agrisud's teams and partners have supported the creation of more than 67,000 VSEs in twenty-four countries.

In this approach, the market economy is mobilized so that stable income and jobs are created, and local markets' needs answered thanks to the VSEs; economic rationality is necessarily brought about in activity management. This approach is also based on the environmental lever by favoring practices that reconcile productivity with low impact on the environment and sustainable management of natural resources, thanks to agroecology. It is based on the social lever as well, by favoring integration within the networks, technical and economic progress to improve people's living conditions.

The key element of this approach is the professionalization process, because it brings about economic and social autonomy. This process particularly focuses on agroecology - Agrisud edited a guide of good practices in agroecology in 2010 and trained over 450 instructors in agroecology. Yet, for a sustainable development of the activity, Agrisud supports farm managers as entrepreneurs through management advising, enabling them to take the right decisions in the managing of their activity. This management advising is essential to the VSE's durability; it is also the bedrock of the development support mission.

For that reason, we have decided to gather our experience from more than 25 years in the form of a guide: **“Management Advising to Very Small Family Farming Enterprises”**. Our primary purpose is to help not only the producer, but also the group of producers, to take the right decisions at the right moment for the sake of their activities' performance and sustainability.

This guide contains a structured approach which is applicable to different contexts in order to provide the advisers with tools and enable them to deliver appropriate advising, thus taking all factors that impact on the decision-making process into account. Advising activities come in a variety of forms according to the context in which they are led: technical proposals to improve or maintain productivity, choices of productions to secure incomes, market research and supply-demand matching, suggestions to improve quality of a service provided by a professional organization (PO), etc. Economic efficiency is often a starting point, but it is always assessed and adapted to the entrepreneur's own strategies and the effects of the activity on its environment.

This document takes the form of a collection of sheets divided into two main sections:

- The first is about **initial advising**. The adviser is given the tools to initiate the advising in the best possible way. In close cooperation with the producer or the PO, the adviser should be able to characterize the VSE and its specific environment, to assess the average results, and to elaborate an initial situation that leads them to suggest guidelines. The producer decides on the improvements to bring, the adviser follows up the implementation and offers adjustments if necessary.
- The second part deals with long-term **advising support**. The adviser is given the tools to go further with the producer or the farmer organization and to share the relevant information to be able to measure the results. Together they analyze the outcome by taking the evolution of the environment into account. At each key stage, solutions are identified to improve or maintain the results. The adviser accompanies the implementation of the decisions, follows up the operations and suggests adjustments if necessary.

This guide is intended for all those who are committed to taking on this role of adviser within project teams on the field, organizations for development of Northern and Southern countries, technical departments, or producer organizations. To facilitate access to the contents of the guide, educational modules have been worked out to build up a **“capacity building program”** intended for these organizations. A first test program was successfully conducted in Madagascar in August 2015.

The team that prepared this guide must be thanked: Ivonig Caillaud, Elphège Ghestem, Raphaël Vincent, and Sylvain Berton. Karine Vial drafted the follow-up of the guide. Julien Dallies added the graphic touch to this guide and Myriam Zguendi ensured the right translation. Special thanks to our partners too: Caisse des Dépôts, Veolia, Laiterie de Saint-Denis-de-l'Hôtel and Orange group which brings the digital touch to communication tools. Last but not least, many thanks to all those who contributed through the crowdfunding platform Miimosa.

I hope that you will find this guide both instructive and enjoyable to read and will be pleased to collect your feedback!

Yvonnick Huet  
Managing Director at Agrisud International

## Foreword



## Henri Rouillé d'Orfeuil

Support and management advising: the main drivers of development for family farming enterprises.

The United Nations General Assembly decided to dedicate the year 2014 to family agriculture. The UN's purpose is not to initiate diplomatic processes, but to cast an international spotlight on important issues that need to be brought to global awareness. Family agricultures still represents 40% of human labor and 70% of global food production. Yet, more than this statistical significance, what needed the world's attention was undoubtedly the necessity to deconstruct the ignorance, the discredit, even the disdain that most governments and major international decision-makers have for family farming and the rural world.

From the outset of the non-governmental process which led to the United Nations' decision, we have highlighted the extreme diversity of family farming on the one hand, and on the other hand, their ability to take up the main contemporary challenges that societies require producers to face better than any other type of agriculture: adequately feeding almost 9 billion human beings, sustainably managing most of the planet's natural resources and providing decent work to over a third of the population.

At the start of 2014, we set three main goals: deconstructing discredit, which means denouncing it by showing with actual figures the potential of agricultures and family farming for the future; highlighting public policies, and not only the agriculture policies, that are likely to fully realize this future potential; and finally, after this year of exchanges and reflections, sometimes celebrations, leaving a "roadmap" for the years to come to enable all stakeholders to take part in family farming development.

In the development and NGO community, Agrisud has a prominent position, particularly as it was and still partly remains a bit out of the mainstream. Better than others, Agrisud has focused its action on the creation of value on a micro-geographical scale through professionalization of family operators and very small entrepreneurs. At "Agrisud's meetings" in Frontenac early September 2014, I met the managers of most projects supported by the field teams and their partners and I could assess the extent and the quality of the work done. While reading this handbook "Management Advising to Very Small Family Farming Enterprises" that I have the honor to preface, I could fully appreciate the modernity of Agrisud's approach.

The discourse on entrepreneurship spirit and economic efficiency, even when it addresses micro companies, generally stops at the boundaries of the economic area, whose success would be enough to solve all problems. You successfully considered the multifunctional nature of agriculture, and farms in all their aspects, and gave a full role to its environmental sustainability and social effectiveness. This guide, which will help enrich our knowledge about family-sized enterprises in the various situations Agrisud's teams work in, falls perfectly within one of the roadmap's major schemes that concluded our French family farming year: the one dedicated to family farm support policies.

The issue of family farm support is an important one as the vast majority of these enterprises are deprived of any external support. In most developing countries, popularization disappeared more than twenty years ago, not only because of structural adjustment plans, but also because of, let it be clear, their inefficiency. For 20 years, a few NGOs like Agrisud, as well as some researchers and dissident officials, committed to working alongside small producers, have been carrying out highly enriching experiences. "Management advising" is most of the time at the heart of these actions, with two concerns: on the one hand, collecting, comparing and interpreting the data, and on the other hand, identifying local innovations and farming strategies that meet the evolution needs of family farming enterprises. In the course of the year 2014, some major producer organizations committed to an accompanying action - notably FONGS which, with its "simplified assessment" method has been following for years almost 2,000 farms in various agroecological regions of Senegal - gathered to assert the emergence of a farm support approach and similarly to express their will to participate in "Agricultural Knowledge and Innovations Systems" (AKIS), bringing together public stakeholders, in the research and agricultural education field for example, professional stakeholders, especially for interface functions with the producers, private stakeholders in some areas of service production, and associations, such as NGOs.

It only remains for me to wish Agrisud to proceed along with the family farms owners and VSEs with this new tool, to keep on producing useful tools for all those - whether small or big stakeholders - who share the same fights and, one day maybe if those stakeholders are provided with the proper means, to offer its experience to the building of national systems and public policies to enable family farms to reveal their full development potential.

Henri Rouillé d'Orfeuil  
Académie d'Agriculture de France

## Foreword

## Marc Dufumier

### Advising presupposes method and expertise



Contrary to “large-scale, capitalist” agriculture which mainly resorts to permanent or temporary employees, “family” agriculture is a form of agriculture where farm owners primarily mobilize family workforce. The management arrangements and criteria for family farms are consequently very different from those commonly practiced in larger farms.

Unlike farm owners who do not directly work personally in agriculture but invest capital to maximize their profit rate, families of producers who work for themselves do so to improve their income and well-being considering the required family working time and its potential hardness.

Whether they are owners, tenants or usufructuary of the cultivated land, and whether they are capital owners or need to borrow money, producers and their families indeed work every day for themselves and endeavor to implement the farming systems that are best able to increase the revenue of their farm labor in a sustainable way, compared to the income they would potentially earn working in other sectors.

In an effort to avoid putting their family out of work, farmers do not have any interest in replacing them with machines unless there are more profitable work opportunities outside their production units. When there is no occasion to find a paid job outside the farms, it is generally in the interest of farm families to intensify their farming systems. Therefore, there is no need to tell them to work more to earn more!

Instead of prematurely replacing the labor force with machines, mechanization of techniques helps reducing busy work periods and alleviate the working conditions. This is how family farming can help avoiding any premature rural exodus, unlike capitalist or landowner farming where shareholders and managers generally favor profit over employment, at the risk of exacerbating unemployment in rural areas. Consequently, family farming generally seems to be able to lessen the problems of employment and rural exodus in keeping with the general interest.

Working for themselves, it is in the interest of producers and their families to optimally manage the use of their family workforce and to stagger the cultivation works and livestock activities all along the year, so as to avoid too busy periods of work and periods of underemployment.

Very often, they must diversify the farming and breeding systems to spread the various productive activities at most throughout the seasons. This often goes hand in hand with implementing systems associating polyculture and mixed livestock, deriving cultures and diversified crop rotations, recycling crop residues and livestock manure within their farms, producing manure, compost and organic fertilization of soils, etc.

This management method of family labor force, which leads farmers to diversify the farming and breeding systems to stagger and combine productive activities throughout the seasons, often favors the implementation of handmade, neat agro-ecological farming systems, rather than large-scale specialized productions. Those agro-ecological systems are generally more respectful of soil fertility and agroecosystems sustainability than those implemented in large farms where single-crop or single-species farming leads most of the time to severe ecological imbalance. These diversified systems, “which don’t put all their eggs in one basket”, turn out to be generally more resilient in case of potential climatic accidents or price collapses.

However, their management can be very complicated on a daily basis. Consequently, farming advisers should take this complexity into account before offering farmers any “improved techniques”. Indeed, every time, they first have to identify and prioritize the technical-economic problems that producers deal with in the management of their farm: occasional busy periods, recurring cash deficits, price and market volatility, recurring shortages of fodder for animals, difficulties to recycle crop residues, obstacles to recycle livestock manure, etc. Likewise, they would have to closely monitor and adequately assess the economic and ecological consequences of the solutions experienced by the producers, with the active participation of the latter.

This presupposes method and expertise. This practical guide intended for farm advisers who provide support to family farming enterprises is therefore most welcome. Let’s hope that it will be read, read again and used by most of them. Family farming deserves it.

This guide is a valuable complement of the guide on good agroecological practices published by Agrisud in 2010 (1<sup>st</sup> edition). Let’s hope for the same success...

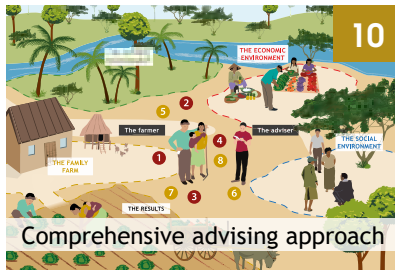
Marc Dufumier  
Professor Emeritus at AgroParisTech



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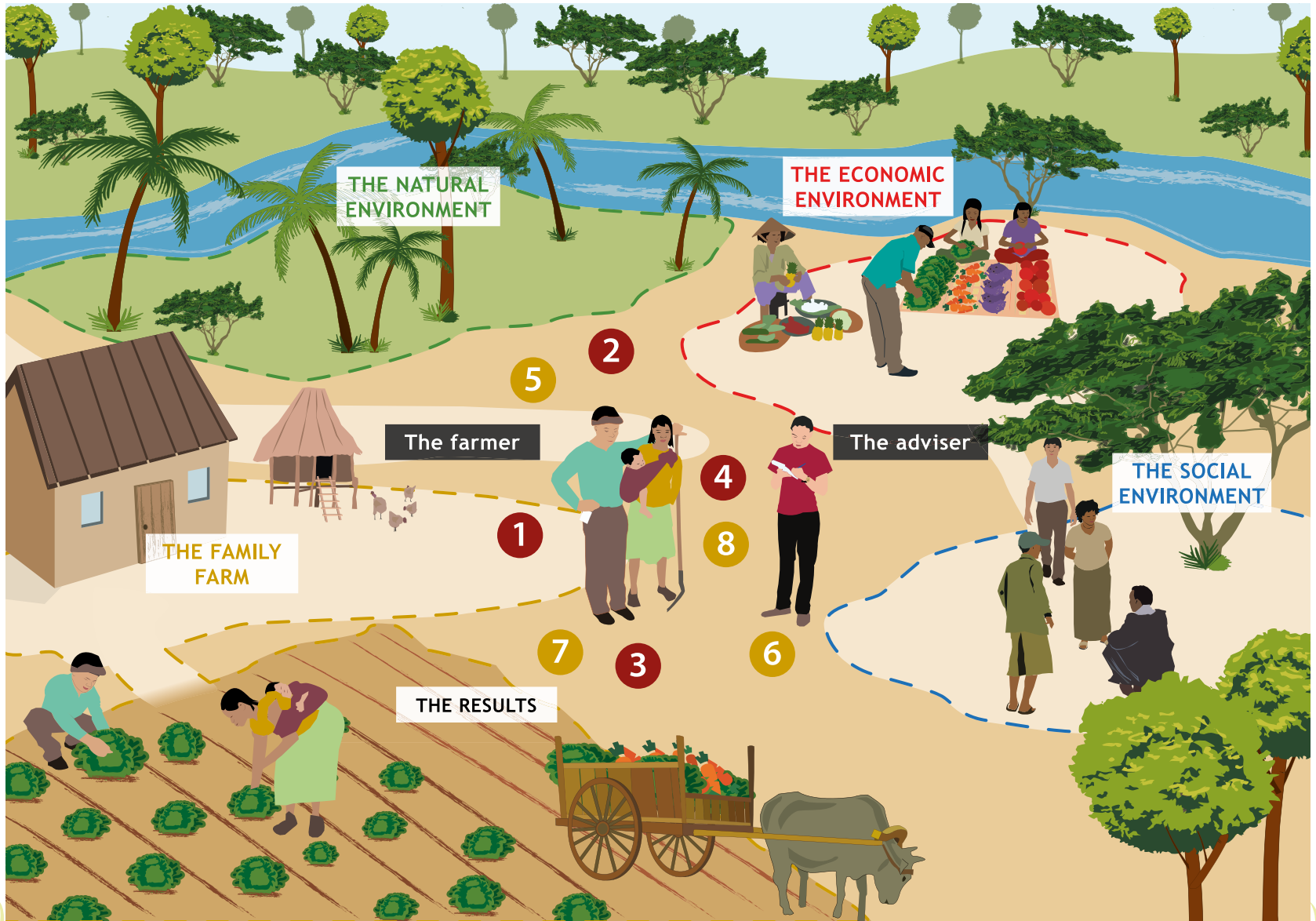




Overview of farms, Morocco

# 1/ Fundamentals





# Comprehensive advising approach

The management advising approach for farming VSEs\* can be considered at **two levels**:

## Basic initial advising

- 1 The adviser characterizes the VSE (*the farm in the diagram above*); the adviser describes and analyzes it to understand how it operates; the adviser identifies with the business owner (*the producer*) its strengths and weaknesses.
- 2 The adviser characterizes (= *describes and analyzes*) the environment where the VSE operates; the adviser identifies the advantages and constraints and analyzes them with the producer.
- 3 The adviser assesses the average results and sets out an initial situation; the adviser shares it with the producer.
- 4 The producer decides - on a suggestion from the adviser - what improvements to bring; the adviser follows up on the applications and recommends adjustments where necessary.

### TO NOTE

The **advising approach intended for a professional organization** which implements one or several farming goods and/or services production activities is the same than the advising approach intended for farming enterprises as described above.

However, the collective dimension (the organization's functioning) must be taken into account in the analysis.

\* *Farms or Professional Organizations.*

## Comprehensive advising support

- 5 The adviser follows up the developments of the environment and provides the producer with relevant information.
- 6 The adviser helps the producer record the data to assess the results of the activities.
- 7 The adviser and the producer analyze the results by taking the environment's developments into account.
- 8 The producer identifies solutions with the adviser to improve the results taking the environment into account; the adviser follows up the applications and suggested adjustments where necessary.

The advising should enable the farmer **to take the right decisions at the right time** to maintain and develop his activities. It is based on a follow-up, analysis and recommendations iterative approach.

The advising primarily requires a good understanding of the VSE, as well as of the environment in which it exists. It can be initiated on the basis of information collected and processed during initial characterizations and must be refined by a data analysis and a monitoring of the environment's evolution.

The advising takes simultaneously technical, economic, environmental and social aspects into account.

In any case, **the advising is the result of discussions between the farm owner and the adviser**, within a dynamic exchange and skill transfer to gain autonomy in the farm's management.

## Producer testimonial



**Yuon Sina**

Farmer-market gardener in Kok Dong,  
close to Siem Reap in Cambodia

*“In my farm, I mainly do market gardening and livestock farming. Agrisud’s support enabled me to diversify the crops, and now market gardening is my main source of income...*

*I earn a little money every day. I am able to save money for my family or buy new farm equipment too. I have also learnt to keep track of my accounts and to calculate my results by writing precisely all the expenditures and revenues of my activities.*

*By joining the producer group, I now have the possibility to deliver part of my products to hotels and restaurants in Siem Reap (...). I could build a new house, install electricity and buy new bicycles for my children.*

*I will pursue my activities for a long time because I am capable of working in full autonomy.”*

Yuon Sina is accompanied by Agrisud and its partner Srer Khmer within the framework of a project for **diversification of per-urban agriculture and fight against malnutrition** in Siem Reap, Cambodia.

820 suburban family farms like Yuon’s are accompanied to intensify and diversify their production, enhance local products, reinforce producers’ organizations and promote agroecology.

With management advising, the producers are accompanied in a professionalization path.



## Producer testimonial



**Keshar Singh**  
Producer of spices in Masras,  
District of Dehra Dun in India



*“I work with my wife and my younger brother on the farm.*

*Agrisud’s support enabled me to achieve two projects: the introduction of turmeric cultivation and the increase in ginger and pepper cultivation areas.*

*Thanks to the advisers, I am able to better manage my activities and renew my seed capital with the new varieties introduced and adapted to my region.*

*Obviously, I am going to reinvest part of my income in the farm, but I am also saving money to send my 2 children to English school.”*

Keshar Singh is accompanied by Agrisud and its partner HARC within the framework of a project of **reinforcement of agricultural systems through the development of spice cultivation** in the Panchayat de Masraspatti of the District of Dehra Dun, in Uttarakhand State.

100 family farms like Keshar’s are accompanied to improve the production systems, introduce high value-added crops (spices), structure professional organizations and implement fair trade channels.

With management advising, the producers are secured in their innovation effort.

## Producer testimonial



### Philippe Lukaya

Producer and storekeeper in a rural community center in Ngombe Mbeya, Province of Central Kongo in DR Congo

*“Dissemination of farm product prices on the various markets had a very positive effect on the production and sales in the villages.*

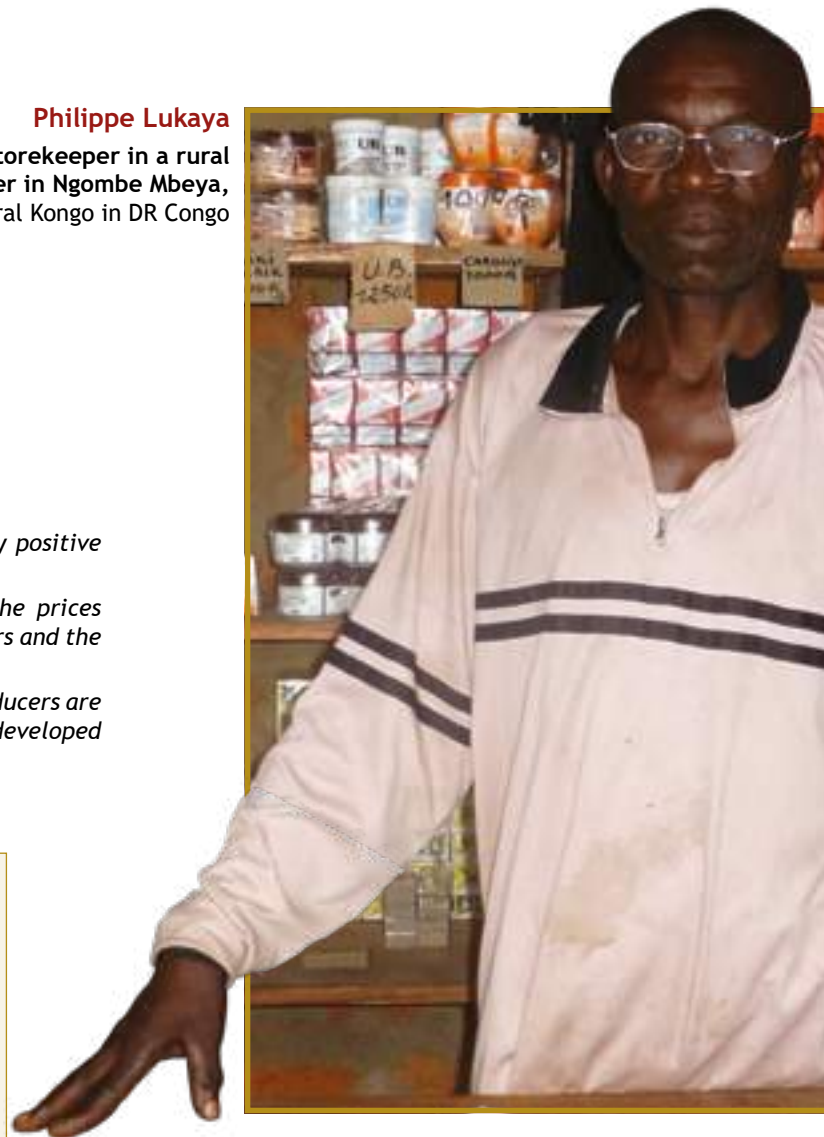
*Before, the merchants could easily ‘deceive’ the producers regarding the prices charged on the urban markets. Now, the negotiations between the producers and the merchants are fairer...*

*Moreover, some agricultural products which were left behind before by producers are now more regarded. In our area for instance, the production of ginger has developed since the price reports came out.”*

Philippe Lukaya is accompanied by Agrisud and its partner the CRAFT within the framework of a project in support to sustainable development of the agricultural sector and activities in Luozi, in Central Kongo Province, in DR Congo. He is a storekeeper in a rural community center, the primary purpose of which is commercialization of local products.

2,000 family farms like Philippe’s are accompanied to increase production, improve the flow of products, and organize service management to production.

With management advising, the profession is better structured.





A farm, Madagascar

# Farming enterprises

*“Tanora ratsy fihary, antitra vao ratsy laoka\*”*

*- Malagasy proverb -*

*\*\*“The youngster who cannot manage his farm will have bad gravy when old.”*





**A farming enterprise** is, in a given environment, a production unit within which the producer mobilizes and combines production factors to obtain agricultural and/or agriculture-related products intended to be consumed and/or sold.

This economic unit can be of various sizes: from a small farm (a few acres or hectares, without or with a small paid labor force, a limited turnover) to significantly larger farms (several dozens of hectares, permanent workers, important turnover).

**A family farming enterprise** is characterized by a strong link between the family and the production unit, between the productive capital and the family property. The labor force is mainly composed of family members. Management of the farm implies economic functions and social functions (e.g. conveyance of property to the next generation).

There is not one single family agriculture but several family agricultures as a result of the diversity of the situations: sizes of the farms, production systems, work organization, commercialization modes. This guide more specifically focuses on very small family farms, which can be regarded as Very Small Enterprises (VSEs).

A farming enterprise can be **described** through its production system which takes account of:

- > the production factors mobilized,
- > the crop, livestock farming and/or processing systems implemented, and the potential service provision achieved,
- > the destination of the products.

## The production factors

They are the material and immaterial resources mobilized as part of the farm production, and they are divided into 3 categories:

- > The land = the property
- > The work = the workforce
- > The capital = the production means

### 1- The land

- ▶ **Physical spaces** where the agricultural activities are located.

The elements to consider are the surface area, the fragmentation, the distance from home and the land status.


*Examples of statuses: ownership (inherited or purchased land), tenant farming (payment of a rent), sharecropping (giving in of a part of the production), usufruct (land used without owning the property).*

### 2- The work

- ▶ **The workforce** mobilized to achieve the farm activities.

*I.e. family working force, hired labor (temporary or permanent), mutual aid group.*

**i DIFFERENT SITUATIONS DEPENDING ON CONTEXTS**




Vegetable plots, Cambodia

**The land:**

- ⇒ A harvested area that varies from a few acres to a few hectares, with a fragmentation that is often substantial (case of South Morocco, Haiti...)
- ⇒ Various and compound land statuses: ownership, usufruct, tenant farming, sharecropping, etc.
- ⇒ Increasing urbanization that leads to important land pressure near cities (e.g. Cambodia, India...)

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Family working force, Morocco

**The work:**

- ⇒ Working force mainly composed of family members and sometimes mutual aid groups
- ⇒ Resorting to paid external workers according to the needs and available means



### 3- The capital

- ▶ **Financial resources** available to invest in the farm and/or to operate farming activities.

*I.e. capital for property investment, working capital.*

- ▶ **Physical inputs and consumables:** consumed intermediary elements for production and necessary to each production cycle.

*I.e. seeds, animals for fattening, fertilizers, phytosanitary treatment products, irrigation water.*

- ▶ **Equipment and buildings** used within the agricultural activities.

*I.e. usual small equipment (hoe, shovel...), agricultural machines (plough, tiller...), buildings (storage shed, sheep pen, poultry house...), irrigation infrastructures.*

- ▶ **Productive capital assets:** animal or plant material used in the medium and long terms as part of the production process, without replacement at each production cycle.

*I.e. breeding animals, perennial crop plantations (banana plantations, citrus orchards...)*

- ▶ **External services** a producer can resort to in order to achieve their agricultural activities.

*I.e. ploughing service, loan, counseling, information...*

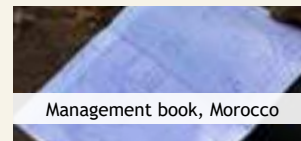
These physical means come in addition to other **immaterial elements** necessary to create and manage the farm and its activities.

*I.e. know-how, organization, marketing brand, etc.*



Transportation service, Sri Lanka

#### **i** DIFFERENT SITUATIONS DEPENDING ON CONTEXTS



Management book, Morocco

##### **Financial resources available:**

- ⇒ Financial means to answer the business and the family's needs are often inseparable; producers are generally poorly equipped to manage them



Tree nursery, Madagascar

##### **Physical inputs and consumables:**

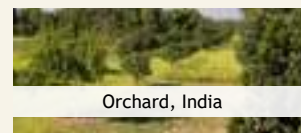
- ⇒ Some are produced in the farm (seeds, feed for livestock farming, compost...); some are purchased from other producers, on nearby markets or from resellers
- ⇒ Proportion of production/purchase varies depending on farms and input types



Poultry house, DR Congo

##### **Equipment and buildings:**

- ⇒ Mainly manual work
- ⇒ Recourse to animal traction or sometimes to small-scale mechanization (tiller, motor pump)
- ⇒ Simple equipment and buildings, generally built with local materials



Orchard, India

##### **Productive capital assets:**

- ⇒ In limited surface area or number; low renewal frequency (ageing plantations, degeneration of breeders)



Transportation service, Sri Lanka

##### **External services:**

- ⇒ Occasional recourse for ploughing, veterinary services...
- ⇒ Very limited recourse to loan

##### **Immaterial means:**

- ⇒ Know-how passed down from one generation to the next
- ⇒ Ownership or not of a brand for commercialization

## Crop, livestock and processing systems

- ➔ **The crop systems** are defined by the way the crops are arranged in space and time within the farm (crop rotation, crop combinations and crop rotation patterns, calendar...), as well as the related practices (crop technological routes).
- ➔ **The livestock farming systems** are defined by the way the activities are structured in space and time within the farm (route zones, fodder plots, production cycles...), as well as the related practices (livestock itineraries).
- ➔ **The processing systems** are defined by the way the transformation of agricultural products is organized in space and time within the farm (products, period...), as well as the technical processes implemented.

### TO NOTE

A farm can include one or several crops, livestock farming or processing systems.

Simultaneously with these systems, it can also offer services to other farms (ploughing...).

The crops, livestock farming or processing systems and the service offers are characterized by:

- ➔ **the type of productions or services**
  - » rice-farming system, market gardening system...
  - » cattle fattening system, dairy cattle system...
  - » processing of manioc into starch system, oil extraction...
  - » ploughing, treatment services...
- ➔ **the organization of productions in time**
  - » off-season market gardening systems...
- ➔ **the organization of productions in space**
  - » in-stall breeding systems, free-range breeding systems...
- ➔ **and the related practices**
  - » agroecological market gardening system, conventional farming market gardening system...

## EXAMPLES OF INTERRELATIONS BETWEEN THE SYSTEMS WITHIN A SAME FARM



Crop system: manioc under palm trees



Livestock farming system:  
manioc-based feeding of pigs



Processing system:  
extraction of starch from manioc

## Destination of products and by-products

The products from a farm can be intended for:

- ➔ **self-consumption:** the products are consumed by the family or given (to family, friends, neighbors...);
- ➔ **intra-unit consumption:** the products are used as inputs in the farm's other farming systems (e.g. fodder production used for feeding dairy cattle);
- ➔ **commercialization:** the products are sold (or swapped as part of bartering) at farm level or commercialized on a market.

The proportion of recourse to each of the destinations varies according to the products, the socioeconomic context and the producers' strategy.

### **i** DIFFERENT SITUATIONS DEPENDING ON CONTEXTS



Preparation of a meal, Senegal

#### Self-consumption:

- ⇒ Some of the products are consumed by the producers depending on their eating habits, the size of the farm, the remoteness of the production sites...
- ⇒ The other products are given



Poultry feeding, Laos

#### Intra-unit consumption:

- ⇒ A share of the production is generally reused within the same system or for another system: fodder for cattle, production of seeds or fertilizers, raw materials for transformation...

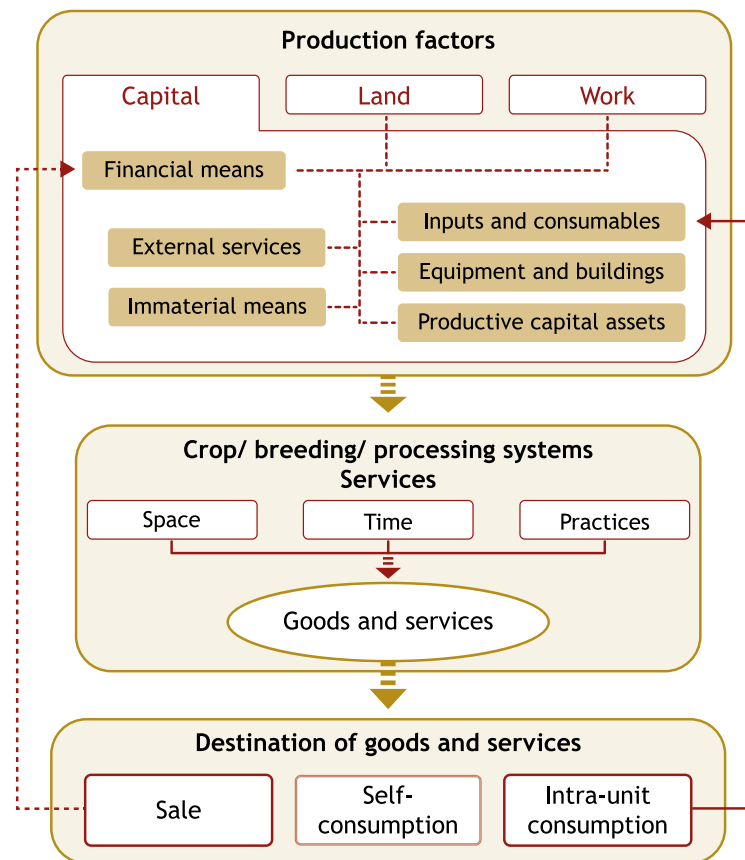


Market, Sri Lanka

#### Sale:

- ⇒ The majority of family farms contribute to the supplying of local markets
- ⇒ Wholesale or retail on the markets, either directly by the producers or by merchants
- ⇒ In some cases, grouping of producers and collective management of commercialization

## Outline: the production system of a farm business







Producers' organization, Haiti

# Professional farming organizations

*“Men ampil chay pa lou\*”*

*- Haitian proverb -*

*\*\*“When carried by several persons, the load is lighter”*





**The professional farming organizations** (POs\*) are composed of farmers gathered around one or several common interests, related to access goods and/or services necessary to the production or commercialization of the products.

The organizations can take different forms, depending on the target objectives and the activities implemented. Sometimes, social services are provided: assistance in case of sickness, death...

This guide more particularly focuses on formalized organizations - but not necessarily legalized - which perform one or several activities to produce a good and/or a farming service.

\* Depending on the context, the professional organizations may be named differently: grassroots community organizations, agricultural organizations... In this guide, the acronym "PO" stands for all producers' groups organized around activities or services

A professional organization can be described in terms of its activities, nature and functioning.

## The activities

### ➔ Access to production factors

- Provision of land, equipment or workforce
- Input supply: bulk purchases, storage...
- Infrastructure purchase and maintenance: irrigation facilities, processing facilities, storage buildings...
- Access to funding: credit granting, connecting with credit agencies...
- Various services: ploughing, processing...

### ➔ Commercialization

- Organization of market entry and control of selling prices
- Search for new markets and labeling
- Production planning...

### ➔ Support/mentoring

- Technical information (practices, analyses...)
- Access to market information
- Training
- Technical and economic advising

### ➔ Sécurisation des membres

- Advocacy
- Agricultural land management: conservation of natural resources, territorial planning
- Secure land access...

## i DIFFERENT SITUATIONS DEPENDING ON CONTEXTS

- ⇒ Group generally organized around a service to support production and/or commercialization: management of an irrigated perimeter, input supply (seeds, veterinary products), processing, transport...
- ⇒ Difficulty in sustaining and developing the service over time



Peanut processing, Haiti



Campaign assessment, India

## ORGANIZATION



Promotion of pepper, Sao Tom e Principe



Advocacy, Morocco

## The types of organizations

They vary according to their purpose, type of activity and scope of their interventions.

They generally include:

### ➔ Self-help groups

Grouping of producers in limited numbers for unpaid work: preparation of soil, fitting of production sites, installation of irrigated perimeters, harvesting...

These groups are generally found at village scale.

### ➔ Professional groups for production, processing or commercialization

Grouping of producers whose purpose is mutualization to get access to a good or a service.

Depending on the activity and the local legislation, these groups might have different statuses: association, cooperative, EIG (Economic Interest Group)...

They are organized at the scale of a village, a town, a department or sometimes a region.

### ➔ The federations or unions of organizations

Grouping of several organizations with the aim to protect the interests of the profession (unionism, lobbying) or for better control of specific sectors (pepper, coffee, cocoa...).

They operate on the basis of self-financing (contributions of member organizations, fee-for-service arrangements) and/or external funding.

Most of the time, the federations or unions operate at the departmental, regional or national scale.

## i DIFFERENT SITUATIONS DEPENDING ON CONTEXTS

**Type:** association or cooperative status most of the time, in connection with the local legislation.



Professional grouping of female breeders, Morocco

## Functioning of the organizations

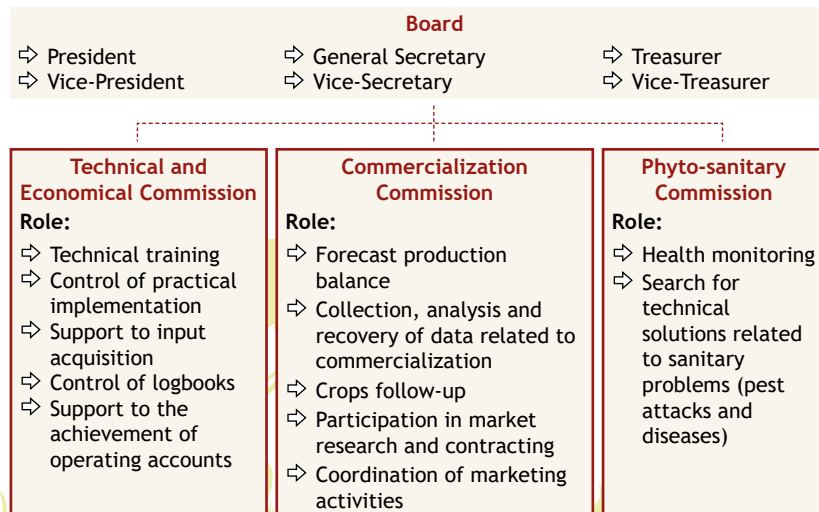
Organizations must lead a number of activities and tasks to ensure proper functioning.

The main activities and tasks are as follows:

| Activities                                   | Tasks                                                                                                                                                                                                                              |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Structuration of the organization</b>     | <ul style="list-style-type: none"> <li>⇨ Determination of the bodies</li> <li>⇨ Division of roles and responsibilities</li> <li>⇨ Conducting meetings</li> <li>⇨ Management of members, etc</li> </ul>                             |
| <b>Formalization of the organization</b>     | <ul style="list-style-type: none"> <li>⇨ Drafting of establishment documents</li> <li>⇨ Procedures to ensure compliance with the local authorities</li> </ul>                                                                      |
| <b>Management</b>                            | <ul style="list-style-type: none"> <li>⇨ Scheduling, implementing and follow-up of activities</li> <li>⇨ Archiving of records</li> <li>⇨ Preparation of balance sheets, etc.</li> </ul>                                            |
| <b>Communication (internal and external)</b> | <ul style="list-style-type: none"> <li>⇨ Mobilization of the members</li> <li>⇨ Promotion of the services and of the organization</li> <li>⇨ Advocacy with the public institutions</li> <li>⇨ Conflict management, etc.</li> </ul> |

Example of an organizational chart in Morocco:

### General meeting - Tifawine fruit cooperative



## i DIFFERENT SITUATIONS DEPENDING ON CONTEXTS

**Procedure:** depending on the context, non-legalized POs leading one-off activities thanks to external support, or legalized POs which manage to mobilize funds and develop their activities.

The activities and tasks linked to the procedure generally imply strong mobilization of some unpaid members, which can lead to the organization's slowdown or loss of momentum.

POs generally implement the following bodies:



General assembly, DR Congo

⇨ **the general assembly** that gathers all the members of the organization;



Board, DR Congo

⇨ **the board**, elected by the general assembly to ensure functioning of the organization; this board is generally composed of a president, a treasurer, a secretary, advisors; the board reports to the general assembly.



Committee, DR Congo

⇨ **the committees** are set up by the board, assigning responsibilities to the organization's members; these committees are given the responsibility to manage one or several of the PO's activities; they are generally composed of 3 to 4 members and report to the board.



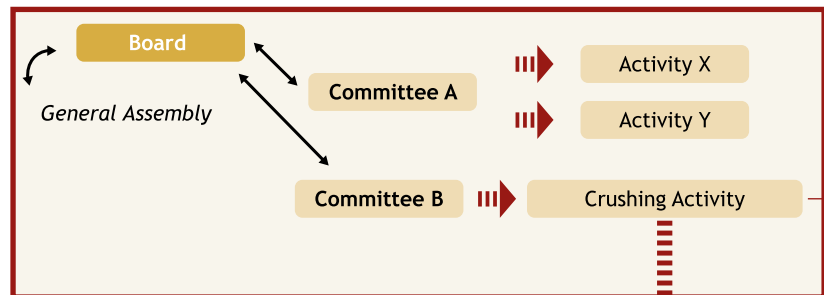
## Summary: analysis of the PO and its production activities

From the moment a PO implements a production activity, it is considered as a VSE and can be analyzed using the components of a production system. However, the collective dimension of the PO requires the organization's general functioning to be considered as it affects the implementation of the production activity.

Ex. PO implementing an activity of olive crushing into oil.

### Analysis of the PO's functioning

#### Professional Organization



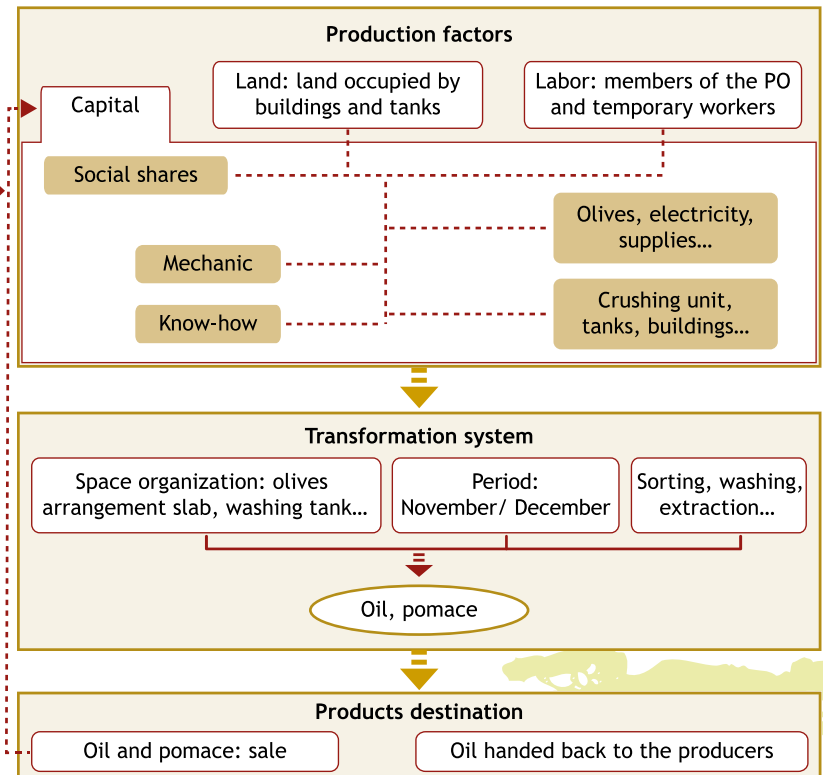
- ⇒ Purchase of olives to the members, production and sale of oil for the benefit of the PO
- ⇒ Crushing service for the producers

#### PO's functioning:

- ⇒ Organizational chart
- ⇒ Establishment texts (statutes and regulation)/ implementation
- ⇒ Number of members/ adherents
- ⇒ Meetings
- ⇒ Implemented administration and management tools
- ⇒ Types of activities/ number of beneficiaries
- ⇒ Partners

### Analysis of the production system

#### Olive crushing activity





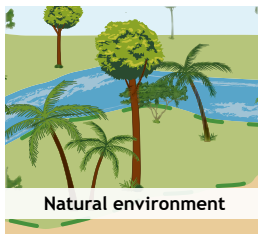


Surroundings of a farm, India

## VSE's environment

*“Il n’y a pas plus grand danger que de rester immobile dans un environnement qui change\*”*  
- French proverb -

*\*“There is no greater danger than standing still in a changing environment”*



Natural environment



Economic environment



Social environment

The environment can be described from three perspectives: the natural environment, the economic environment and the social environment.

### The natural environment

The characteristic elements to consider are the following:

- ➔ **the climate** (identifying the seasons),
- ➔ **the landscape units** (piedmont, plateaus...),
- ➔ **the existing and available resources likely to be used by the farm:** water (underground and surface), soils, and biodiversity (fauna, flora).

The scale of analysis is that of the area where the VSEs are and takes account of:

- the specificity of the landscape units (if several units form the zone),
- the interactions with the neighboring territories.



Natural environment, Morocco

**The environment** in which a VSE operates is represented by all the external elements it is connected with in order to lead its activities. These elements can be natural, economic or social elements.

The environment influences the activities and the activities have an impact on the environment. For the sake of sustainability, the VSE's activities must be optimally integrated into their environment and in balance with the elements it is composed of.

### DIFFERENT SITUATIONS DEPENDING ON CONTEXTS



Floods, Cambodia

#### Climate:

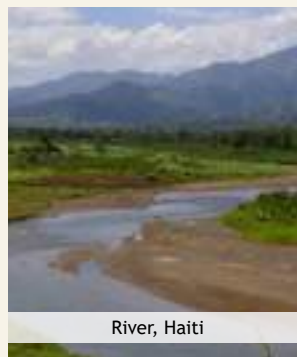
- ⇒ Humid tropical, semi-arid...
- ⇒ Depending on the contexts and the seasons, heavy rains, important droughts, strong winds, temperature variations, low or strong sunlight...



Forest, DR Congo

#### Landscape units:

- ⇒ Mountainous area, oasis, flood plain...



River, Haiti

#### Natural resources:

- ⇒ **Water:** availability (or low availability) of the water resource; quality of water more or less adapted to the crops (salinity) and to livestock watering...
- ⇒ **Soils:** fertile to poor, flat or sloping; in urban and per-urban areas, there is the issue of the pollution of non-agricultural origin.
- ⇒ **Biodiversity:** more or less available vegetation (source of materials for buildings or for production of inputs), presence or not of auxiliary animals or pests...

## The economic environment

The characteristic elements to consider are the following:

- ➔ **the markets:** location, types (wholesale, retail markets...), other selling places (restaurants...), prices;
- ➔ **the marketing conduits** (disposal and supply): operators upstream and downstream the production (suppliers of inputs and equipment, processing units, traders...);
- ➔ **the financial environment:** financial services, stability of the currency, taxes.

The scale of analysis is generally that of the supply pool of the markets which are of particular interest for the VSEs.

### TO NOTE

VSEs' economic environment is generally dominated by the so-called "informal" sector which is outside the administration's control.

## The social environment

The characteristic elements to consider are the following:

- ➔ **the socioeconomic data:** demography, basic social services...;
- ➔ **the regulatory framework and the habits and customs:** VSE regulation, labor law, bans and customary obligations, traditional organization modes...;
- ➔ **the actors and their relationships:** agricultural professional organizations, administrations, territorial authorities, state services, NGOs...

The analysis may concern a territory defined by administrative limits (town, department, region...) and/or cultural limits (traditional authority and/or similar rules and customs).

## DIFFERENT SITUATIONS DEPENDING ON CONTEXTS



Wholesale market, Cambodia

### Markets:

- ⇨ Remoteness or proximity of the selling places, abundance or shortage of products, price fluctuation, competition from imported products...



Farmers' shop, Laos

### Marketing conduits:

- ⇨ Presence or not of external services, direct circuits, short or long, transport conditions often difficult...

### Financial environment:

- ⇨ Access to financial services is often limited for farmers, sometimes easier for sufficiently well-structured POs.



Vulnerable family, India

### Socioeconomic data:

- ⇨ Availability or not of workforce, population movements, low level of literacy and/or education, remoteness of services...

### Regulatory framework, habits and customs:

- ⇨ Legislation not always observed, unknown current regulation...
- ⇨ Marginalization of the most vulnerable, gender inequality, influence of customary organizations...



Farmers' group, Senegal

### Actors and relationships:

- ⇨ Synergy or deadlock between development actors, presence or not of professional organizations...
- ⇨ Close or remote supervision capacity of technical services...

## INFORMATION AND COMMUNICATION TECHNOLOGY TOOLS

Information and communication technologies (ICT) are crucial nowadays: they are opportunities to reinforce performance of VSEs within their environment.

*Ex. Access to products' prices on market days via mobile phones (written or oral messages); reception of environmental alerts (weather forecast, attacks...); etc.*

Therefore, it is useful to know the ICT available in the environment to identify their potential links with the VSE's activities.

## DIFFERENT SITUATIONS DEPENDING ON CONTEXTS



### Information and Communication Technology tools:

- ⇒ Network coverage or not
- ⇒ Local know-how (handling of ICT tools)...
- ⇒ Existence of services dedicated to agriculture or which can be related to agriculture, financial accessibility or not...

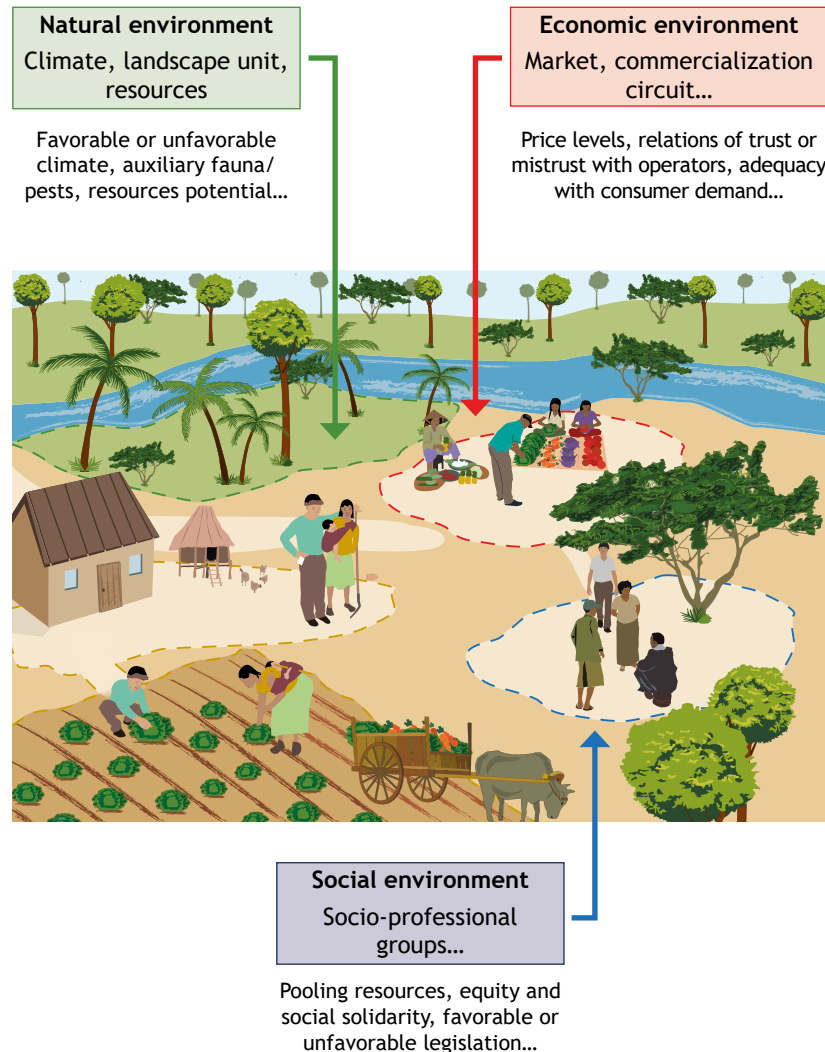
## Summary: the integration of VSEs into their environment

Whatever the context, VSEs must adapt to the environment that impacts their ongoing activities.

The environment may have advantages (positive influences) or constraints (negative influences) for the VSE's activities. Therefore, the VSEs must adjust their practices and development strategies while taking these influences into account.

In the same way, the VSEs' practices and strategies impact the environment: these effects can be positive or negative.

**Therefore, it is necessary to take these interactions into account in the analyses.**





## Prerequisites

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## Tools to understand

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## Method to initiate advising

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Technical follow-up visit, Cambodia

## 2/ Basic Initial Advising





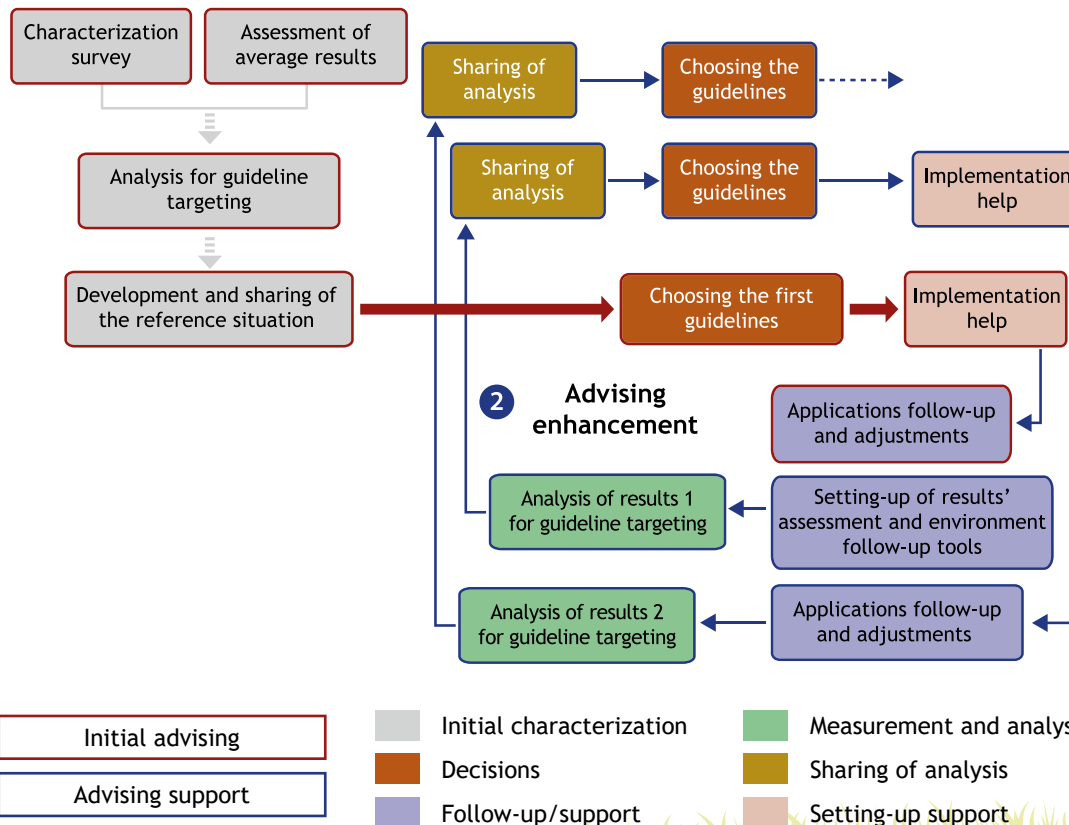
# Basic initial advising and advising support

## Framing

This handbook offers a set of methods and tools to:

- ➔ initiate the advising,
- ➔ achieve advising support over time, based on the results of the activities and evolution of the environment.

### 1 Initiating the advising





# Understanding

# Characterizing the VSEs

## Example of farms

**Characterization** is a description and analysis exercise. In the case of a farm, it can concern all the implemented production activities, or only one or several of them.

Characterization provides a better understanding of the farm as a whole (or the production activity), prior to any advising approach.

### Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

### Goals:

- » Identifying the farmer and his family's socioeconomic situation
- » Identifying the mobilized production factors
- » Describing the crop, livestock and processing systems and the farm's potential service offers
- » Determining the products' destination
- » Detecting the possible room for improvement

### Conditions for implementation:

- » Mastering the notion of farming system
- » Mastering the study, data processing and analysis techniques
- » Establishing a representative sample in case of a large number of VSEs to support
- » Having the necessary authorizations to achieve the study

## Principle

Characterization of the VSE is a prerequisite for implementing an advising approach. It is achieved as a complement to characterization of the environment (cf. Sheet *"Characterizing the environment"*) and should allow to collect the information that will later serve as reference (cf. Sheets *"Assessing the average results of the production activities"* and *"Determining and sharing the reference situation"*).

In the case of farming enterprises, characterization is about:

- ➔ the farmer and his family's profile (socioeconomic profile),
- ➔ the enterprise's farming system.

The detail level of a characterization must be adjusted according to the available means (number of surveyors, time) and the information needs. In any case, the procedure must allow to detect the room for improvement to channel the basic initial advising.

Characterization can be made for each farm or for a representative sample that takes the diversity of the situations into account.

### TO NOTE

Characterization deals with the technical (farming practices...), economic (products flowing) and socio-professional (composition of the family, resort to support services...) aspects.

## Method

Characterization is achieved in 3 stages:



Information collection, Morocco

### TO NOTE

Feedback to farmers is made when the complete reference situation is established.

(cf. Sheet *"Determining and sharing the reference situation"*)

## Prerequisite: structuring the procedure

Structuring a characterization is:

- ➔ **defining the goals** in terms of topics (specific interest areas, ex.: poultry breeding within a farm) and in terms of quantity (number of farms to characterize in the case of sampling);
- ➔ **identifying the human resources** (number and skills) and preparing it to ensure a good understanding of the procedure and its capacity to lead it (notably regarding the conduct of the survey so that the data are exploitable and reliable);
- ➔ **defining the agenda** (survey periods, enhancement and verification times...).

### 1- Identification of the information to collect

#### 1.1- Data on the farmer and his family's profile

They concern three categories of information.

The farm owner

The family

The socioeconomic situation

Example of information per category:

- ▶ **farm owner:** name, surname, age, gender, origin or status (native/ foreigner), education level, marital status...;
- ▶ **family members:** number, age, occupation, education level...;
- ▶ **socioeconomic situation:** types of activities contributing to the family resources and time/ people mobilized on these activities, main and secondary activities, housing conditions, etc.

The examples above are included for illustrative purposes only and the list is not exhaustive. The aim is to assess the farmer and his family's vulnerability - and consequently the capacity to modify the practices and to take risks - through socioeconomic indicators such as wealth, poverty, integration/ exclusion...



Family of farmers, India

### **i** ILLUSTRATION – EXTRACT OF A CHARACTERIZATION, FAMILIES' PROFILES/ MOROCCO

#### Farm owner:

- ⇒ 55 years old (average age); from 28 to 80 years old
- ⇒ Experience in agriculture of 37 years on average (70 years for the oldest and 3 years for the youngest)
- ⇒ 52% of the farmers cannot read nor write

#### Family:

- ⇒ 8 people on average per family, including 4 children
- ⇒ 3 people work in the farm, generally brothers (more rarely a father and his sons)

#### Farm activity:

- ⇒ Full-time activity for 90% of farmers
- ⇒ Practically all-male activity; women only participate in a few breeding tasks on an exceptional basis

#### Comments

Agriculture in the area is a family activity: the farms have been inherited from father to son since two or three generations. Consequently, an agricultural know-how does exist.

#### The current issues are:

- ⇒ The ageing of the farm owners and the young's lack of interest for the sector that seems unattractive: important physical effort, arduousness, low income...
- ⇒ Illiteracy of more than one farmer out of two, which penalizes the management of the activity (led at random).

## 1.2- Data on the farming system

They concern:

The production factors

The crop, livestock, processing systems and the service offers

The destination of the products

### 1.2.1- The production factors

Selon les objectifs fixés de la caractérisation, le niveau de détail diffère. Dans tous les cas, il s'agit de déterminer les facteurs qui sont mobilisés et la manière dont ils sont mobilisés afin de relever les marges de progrès.

#### **i** REMINDER

Within the production factors, one must distinguish: land, labor and capital.

Example of information related to production factors:

#### ➔ Land

Total surface area, number of plots (fragmentation, remoteness), land status (ownership, sharecropping...).

» Possible detail level for each plot: average access time to the plots (or distance), surface area, use, specificities (layout, risks...), operation duration...

#### ➔ Labor

Composition of the labor force, recourse to salaried workers, costs and specific tasks.

» Possible detail level: tasks dedicated to the different categories (men/ women), working time...

#### ➔ Capital

Mobilizable financial means: method of financing each campaign, mobilized external resources (migrants' income...).

» Possible detail levels: amount of cash available for the agricultural campaigns, history of the farm's evolution and funding of this evolution, level of indebtedness...

- ➔ **Inputs and consumables:** types, share natural products/ synthetic chemical products, share purchase/ farm's self-production...  
» Possible detail level for each input: purchase location, used quantities, costs, productions concerned...
- ➔ **Equipment and buildings:** inventory of the equipment, machinery and buildings available.  
» Possible detail level: state, costs, purchase mode...
- ➔ **Productive fixed-assets:** species/ varieties, species/ races, number of plants or areas concerned, number of livestock heads, state.  
» Possible detail level: renewal deadlines, evolution of capital assets over time, value...
- ➔ **External services:** type, sub-units and products concerned, consultation frequency.  
» Possible detail level: fares charged, conditionality.
- ➔ **Intangible means:** seniority in the activity, specific expertise.



Seeds, Laos



Orchard, Morocco

#### **TO NOTE**

In the case of characterization of a production sub-unit, the factors to analyze are those mobilized at the unit level.

### 1.2.2- The crop, livestock and processing systems and service provision

The purpose is to determine the various systems that constitute the farm enterprise and to specify the implemented farming practices to identify the potential room for improvement.

Given the farms' multiactivity, it is difficult to precisely describe the technical itineraries for each activity during the characterization process. Therefore, there are two possibilities:

- achieving the detailed process only for the main activities;
- simply describing the operation modes (main practices) at first, then giving details of the specific routes during in-depth studies.

#### TO NOTE

In situations where only one area of activity is characterized, with limited variety in the products, the technical itineraries must be detailed.

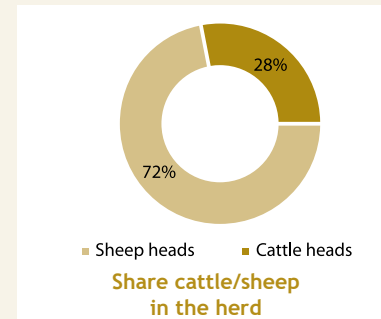
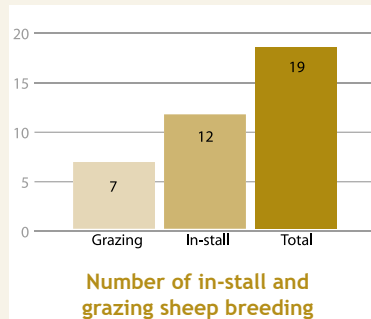
Examples of information related to crop, livestock and processing systems:

- **Type of activity:** identification of the main activity by system.
- **Organization of the activities in space:** land made available, organization of the crops in space, share of areas and buildings operated/ set aside (fallow)/ not used.
  - » *Possible detail level for each activity: cultivated surface areas and grazing land, buildings and spaces dedicated to livestock farming and processing...*
- **Organization of the activities in time:** sequence of production cycles through time and characterization of the main seasons (cropping calendars/ production cycle calendar).
  - » *Possible detail level for each activity: dates of soil preparation, of start of production (sowing, mating, purchase of livestock for fattening or raw products to transform), of maintenance, of harvest, of post-harvest operations, of processing...*
- **Practices:** identification of the operation modes and the main practices.
  - » *Possible detail level for each activity: technical routes.*

#### ILLUSTRATION – EXTRACT OF A CHARACTERIZATION, BREEDING ACTIVITY/ MOROCCO

##### Breeding:

- ⇒ Sheep and cattle are the main species
- ⇒ Presence in the farms of a few goats and poultry, but on an exceptional basis
- ⇒ 6 cattle heads and 18 sheep heads on average per farm
- ⇒ In-stall breeding with a little grazing during the day for the sheep



##### Comments

Almost 80% of the farms combine a breeding activity with crop production activities. Two main species are systematically found: cattle and sheep. The cattle are in stalls, whereas the sheep can graze during the day. The farmers generally own between 5 and 10 cattle heads and about 20 sheep heads, but there are exceptional cases where the cattle herds reach 50 heads and the sheep herds 80 heads (...).

#### TO NOTE

The potential services provided are described according to the same principle: type of service provision, provision capacity of the producer (ex. number of hectares ploughed per day), calendars (periods of service and intensity), practices (technical elements describing the service provision), rates, customers.



### 1.2.3- The destination of the products

The goal is to be able to determine the farm's purpose (self-consumption purpose, mixed purpose or commercial purpose) and the flow channels in order to target the development guidelines afterwards.

**Examples of information related to the destination of the products:**

➔ **Share self-consumption/ sales** for each crop, breeding and processing system and generally at farm level.

» Possible detail level by type of product: share of each destination.

➔ **Marketing conduits:** destination of the products, sales modes.

» Possible detail level by product: sales modes (wholesale, retail, live animals) and sales locations (field side, assembly market, retail market...), prevailing prices during sales or enhanced according to the prices on the markets, types of purchasers (intermediates, wholesalers, consumers...), incidentals specificities (transport, storage, quality...).



Sales on local markets, Senegal

### **i** ILLUSTRATION - EXTRACT OF A CHARACTERIZATION, DESTINATION OF PRODUCTS/ MOROCCO

#### Marketing conduits:

- ➔ 53% of the farm's products are intended for sale
- ➔ Product processing not very common (except wheat for flour), only a few producers transform a part of their olives into oil for family consumption
- ➔ Two sales systems, depending on the products: sales of products on plot to an intermediate (No.1)/ sales of products by the producer at the souk (village market) or at the wholesale market (No.2)
- ➔ Sales of products on the local markets or the regional markets (sales system No.1)
- ➔ Sales of products on the local markets (sales systems No.2)

#### Comments

Family farming enterprises are diversified farms, with a self-consumption and commercial purpose: one part of the production is sold (53%); the other part is consumed inside the farm (intra-unit consumption). The share sales/ self-consumption and intra-unit consumption varies depending on the type of activity and products. There are two chief sales systems:

- ➔ sale of products on plot to an intermediate who oversees the harvest and the sale of the products on the local or regional markets;
- ➔ sale of products by the producer on the local markets.



Commercialization of tomatoes, Niger

## 2- Data collection and processing

After identification of the information to collect, and before starting the field survey, it is necessary to look for the existing secondary data. They might be available from the competent authorities (state services, universities...), other development actors (NGOs, research centers...) or Internet.

It is about assessing the current state of the information available and identifying the data to verify and collect.

Next, the work is organized in 4 steps.

### ► Step 1: Preparation of the questionnaires

The questionnaires must be such as to collect all qualitative and quantitative information that is missing and/or to confirm. They can be organized following these broad categories:

- The farm head and his family,
- The production factors,
- The crops, breeding, processing systems and the provision of services,
- The destination of the products.

The surveys switch between open questions (the respondent has the opportunity to develop their answer) and yes/no questions.

There are spaces to write down the information, tick the answers, make calculations, inscribe temporal data (calendars), etc.

Concerning open questions, it is necessary to provide sufficient space to record the information developed during the conversation.

As a conclusion to the surveys, questions about the farmer's expectations should also be included.

### ► Step 2: Planning with the farms

An appointment must be agreed on in advance with each farm. To avoid logistical issues, it is better to take individual appointments for a group of farmers in the same area. The duration of the interview is about 2 to 3 hours for each farm (it varies according to the information's detail level).

### ► Step 3: Information collection

Information collection is achieved during the interview, thanks to the arranged survey. The discussion is held on the farm to facilitate dialogue and allow direct observations.

During the interview, it is important to leave enough time for the farmer to answer, ask for clarification if necessary and to assess the relevance of the collected information.

### ✍ TO NOTE

The data usually collected are declarative and can be biased in case of lack of understanding of the process or influenced by the farmer (shyness, desire to please, hidden motivation...). Therefore, it is important to explain thoroughly the goals of the interview and to validate the information by reformulating the question, visiting the farm, asking for precisions or analyzing the collected data in comparison with the other farms.

### ► Step 4: Classifying and processing the information

The surveys are numbered and classified.

The information processing can be made in an individual manner (by farm) or collective manner (by group or sub-group identified by geographical area and/or by preparing a typology).

If required, the processing of quantitative data involves calculations of averages, minima and maxima; the qualitative data are processed through case studies.

The processing of significant quantity of data can be achieved in the form of data bases (spreadsheet) in order to facilitate the analyses by automating them.



### 3- Analysis of collected data

The analysis of collected data is made to determine the farm's possible room for improvement with a view to:

- ▶ An easier access to the production factors, a more efficient mobilization  
*Ex. Reorganization of the work (optimization of labor); renovation of the irrigation systems (optimization of water resource)...*
- ▶ A better mastering of the crops, breeding and processing systems  
*Ex. Dissemination of ecological intensification practices...*
- ▶ Fluxing of products circulation  
*Ex. Dissemination of information about the periods of products abundance and shortage, guidelines on processing...*

The farms are not isolated and interact with their environment (cf. Sheet *"VSEs' environment"*). Consequently, the analysis should consider:

- ▶ The farmer and his family's socioeconomic situation and strategies;
- ▶ The links between the agricultural practices and the productive natural resources (water, soil, biodiversity);
- ▶ The links between the commercial strategies and the markets.

(Cf. Sheet *"Characterizing the environment"*).



Data analysis, Laos

### Advantages and disadvantages

- 👉 Characterization is a method that enables to appreciate the initial situation of family farming enterprises.
- 👉 As it focuses on a participatory approach, characterization enables the farmer to comprehend the analysis process.
- 👉 It is possible to build farm typologies based on this information when the number of VSEs to support is significant.
- 👉 Combined with environment characterization and assessment of key results, it enables to establish a reference situation to share with the farmer and his family.
- 👉 This process requires a good capacity to collect field data efficiently.
- 👉 The duration of surveys and the details of information to provide may get the farmers bored over the interviews and affect the data's level of reliability.
- 👉 Characterization takes time: achieving the surveys, recording and processing of the data, analysis...
- 👉 Processing of an important quantity of data requires skills in database development.

#### KEY POINTS TO REMEMBER

- Characterization is the preliminary stage to any advising action and it is about:
- ⇒ The farmer and his family's profile to assess their ability to manage risks and modify their systems and practices;
  - ⇒ The farming systems to determine the room for progress.
- VSEs' characterization goes hand in hand with the environment's characterization. Later, both procedures enable to reconstruct the activity's economy and to establish a reference situation.

#### TO GO FURTHER

- Sheet *"Characterizing the environment"*
- Sheet *"Assessing the average results of the production activities"*
- Sheets *"Analyzing the initial situation"*
- Sheet *"Establishing and sharing the reference situation"*



# Understanding

# Characterizing the VSEs

## Example of professional organizations

**Characterization** is a description and analysis method. In the case of a professional organization that carries out activities of production of agricultural goods and/or services, the process focuses on nature and functioning of the organization as well as on its production activities.

The purpose of characterization is to have a better understanding of the PO before any advising process.

### Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

### Goals:

- » Determining the nature and functioning of the PO
- » Identifying and describing the production activities implemented (goods and/or services)
- » Defining the room for progress not only regarding the collective functioning but also the production system

### Conditions for implementation:

- » Mastering the survey, processing and data analysis techniques
- » Having knowledge of the professional organizations' logics and forms
- » Mastering the notion of production system
- » Getting the potentially necessary authorizations to carry out the surveys

### Principle

Characterization of a VSE is a prerequisite for the implementation of an advising process. It is carried out in conjunction with the environment's characterization (cf. Sheet *"Characterizing the environment"*) and should enable to collect information which will then serve as a reference (cf. Sheets *"Assessing the average results of the production activities"* and *"Establishing and sharing the reference situation"*).

In the case of professional organizations, characterization focuses on:

- ➔ The organization's profile (nature and functioning),
- ➔ The activities of production of agricultural goods and/or implemented services.

### TO NOTE

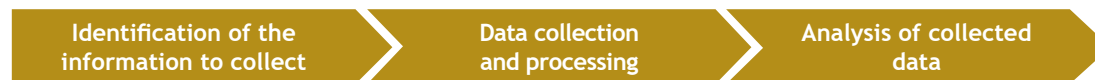
The analysis of a PO's production activities is carried out on the basis of the same description principles than those of a farm's farming system.

The detail level of a characterization is to be adjusted considering the time available and the information needs. The analysis can be deepened thereafter.

In any case, this method should allow to determine the PO's possible room for improvement to provide guidelines afterward for the basic initial advising.

### Method

Characterization of a PO is achieved in three steps:



Characterization session of a PO, Morocco

### TO NOTE

Characterization of a PO is carried out in conjunction with characterization of the environment and sometimes requires additional information.

Restitution to the members is thus possible when the entire reference situation is established (cf. Sheet *"Establishing and sharing the reference situation"*).

## Prerequisite: framing the process

Framing the characterization of a PO is about:

- ➔ **Defining the objectives** by widening the “usual” perspective of PO analysis, that is often limited to collective functioning; this notably includes describing the activities implemented based on a farming system;
- ➔ **Identifying the human resources device and preparing it** to ensure the process is well understood and its ability to lead it, more particularly as regards the running of the surveys so that the data are exploitable and reliable;
- ➔ **Defining the agenda**, by possibly distinguishing between the time required for the survey about nature and functioning of the PO and for the survey about the production activities.

### 1- Identification of the information to collect

#### 1.1- Data on the PO's profile

They concern three categories of information.

The general data

The nature of the organization

The functioning of the organization

Examples of information by category:

- ▶ **General data:** name of the PO, location, date of creation, number of members...;
- ▶ **Nature:** status, reason for past grouping, purpose of current grouping;
- ▶ **Functioning:** organization chart, activities and tasks assigned to the collective organization.

The above list of information is not exhaustive and varies according to the contexts. However, the collected information should enable to dispose of elements that are useful to apprehend the consistency of an organization.

#### TO NOTE

Knowledge of the organization's history often sheds some interesting light to understand the PO's current situation.



General meeting of a PO, Cambodia

#### ILLUSTRATION - ORGANIZATION OF THE DATA RELATING TO THE FUNCTIONING OF A PO

##### Structuring:

- ⇒ **Bodies:** nature, composition, responsibilities and relations, renewal procedures
- ⇒ **Activities:** types of meeting, frequency, participation of members

##### Formalization:

- ⇒ **Founding texts:** existence of statuses, rules of procedure, charter...
- ⇒ **Legal recognition:** existence of updated official documents
- ⇒ Existence (or not) of a bank account...

##### Gestion:

- ⇒ **On the operational scale:** tools and methods for programming, implementation and follow-up of activities
- ⇒ **On the administrative and financial scale:** programming methods and tools, financial procedures, budget monitoring, archiving...

##### Communication:

- ⇒ **Internal:** transparency, promotion of services to the members...
- ⇒ **External:** promotion of the PO to its partners, relations with the administrative and political authorities, membership in professional networks...

## 1.2- Data on the production activities

They concern two categories of information.



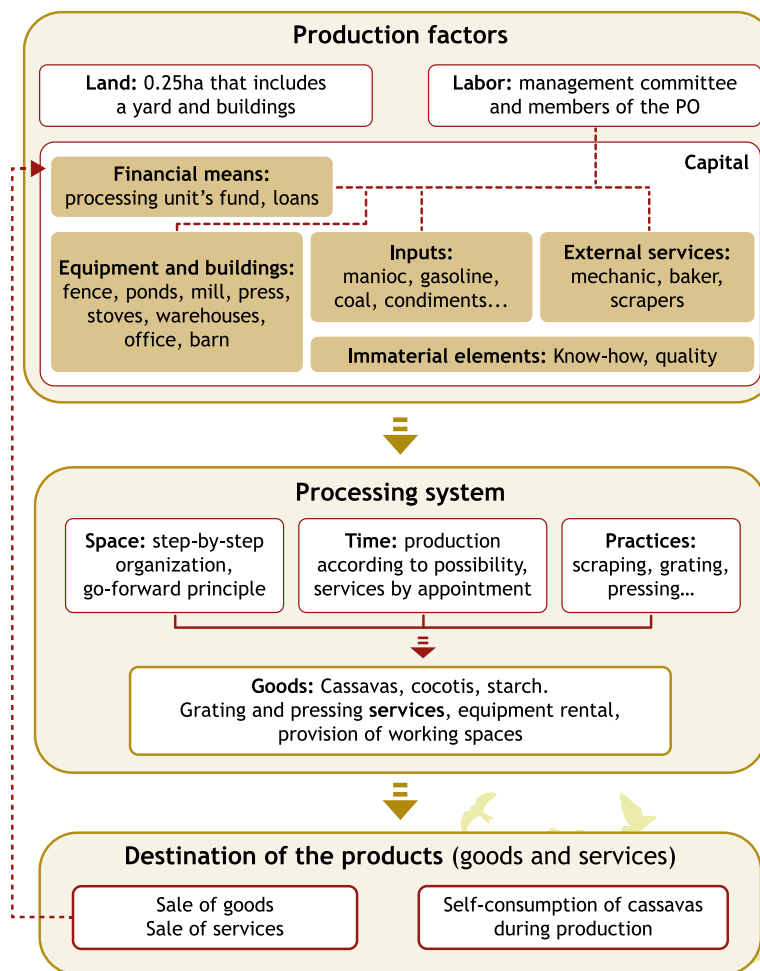
### Examples of information by category:

- ▶ **History of the production activities:** reason for the implementation, role of the organization in the conception and execution of the activities, etc.;
- ▶ **Farming systems:** production factors mobilized (land, work and capital), crop, breeding, processing and service provision systems, destination of the products (cf. Sheet *“Characterizing the VSEs - Example of farms”*).

Focus on the production activities should enable to assess:

- The utility of the organization related to the members’ needs;
- The efficiency of the services provided by the PO to its members.

## The cassava factory’s farming system (manioc bricks production unit):



### i ILLUSTRATION - EXTRACT OF CHARACTERIZATION OF A PO – HAITI

|                             |                                                                                                                                                                                                                                                                                                    |  |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Implemented services</b> | <ul style="list-style-type: none"> <li>⇒ Production of cassava (manioc bricks), starch, and “cocotis” (manioc residues)</li> <li>⇒ Rental of spaces and processing equipment</li> <li>⇒ Grating and pressing services</li> </ul>                                                                   |  |
| <b>History</b>              | <ul style="list-style-type: none"> <li>⇒ Unit implemented with the support of an NGO for the construction of the building and the equipment</li> <li>⇒ Participation of the PO in terms of labor force and materials</li> <li>⇒ Extension of the roof and concrete slab using own funds</li> </ul> |  |

## 2- Data collection and processing

After identification of the information to collect and before completing the surveys on-site, it can be interesting to find out whether secondary data exist. They can possibly be available from other development actors who had interacted with the organization in the past.

Afterwards, the data collection and processing work is organized in 4 steps.

### ► Step 1: Preparation of tools

The tools must allow to collect all qualitative and quantitative information previously identified. They vary depending on the type of information to collect.

Therefore, the data relating to the general presentation of the PO can be collected through a semi-structured interview (checklist to prepare).

The data relating to the functioning of the PO will be collected through a participatory assessment exercise (cf. Sheet *“Focus on a tool for assessing POs’ collective functioning”*).

Finally, the data relating to the farming system will be collected through structured interviews (surveys to draft).

### TO NOTE

The structured surveys to describe the production activities are elaborated on the same format as the surveys relating to a farm’s system, with three main sections:

- ⇒ The production factors,
- ⇒ The crops, livestock, processing systems and providing of services,
- ⇒ The destination of the products.

### ► Step 2: Planning with the POs

The characterization work must be planned with the PO’s key actors.

An appointment can be agreed on in advance with the committee. During this first meeting, the following appointments will be arranged with the appropriate people depending on the information to collect: adherents, members of the board, committees...

### ► Step 3: Collection of information

The data are collected thanks to surveys as the discussion progresses.

During the interviews, particular attention should be brought to the presentation, understanding of the exercise’s objectives, clearness of the remarks, the place chosen, and the time allotted to avoid bias.



Collection of information, India



Collection of information, Niger

### ► Step 4: Classification processing of the information

The notes taken during the interviews are drafted, reviewed and classified.

Processing of the data relating to the POs is generally achieved under the form of case studies. Spreadsheets can also be used to work on the quantitative data.



### 3- Analysis of collected data

The data analysis should enable to determine the possible room for improvement:

- ▶ **In the functioning of the PO** for a better cohesion and improved efficiency  
*Ex. Transparency in the decision process, distribution of roles, visibility among the partners...*
- ▶ **In the farming system** for improvement of the activities' techno-economic results  
*Ex. Modification of the technical itineraries, improvement of the products' quality, positioning on new markets...*

The POs are not isolated, and they interact with their environment (cf. Sheet “VSEs' environment”).

The analysis should consider:

- ▶ The collective strategies and the role of the PO in the social environment,
- ▶ The links between the practices implemented as part of the activities and the productive natural resources (water, soil, biodiversity),
- ▶ The links between the commercial strategies and the markets.

(cf. Sheet “*Characterizing the environment*”).



PO meeting, DR Congo

### Advantages and disadvantages

- 👉 Characterization is a process that enables to understand the grouping logics and to assess the results of the production activities implemented.
- 👉 As it favors a participative approach, characterization enables the PO to understand the analysis approach and to position itself in the advising logic.
- 👉 Characterization of POs' economic activities follows the same approach as characterization of a farming system.
- 👉 Combined with characterization of the environment and assessment of the average results, the approach enables to determine a reference situation to share with the PO.
- 👉 Understanding the functioning of a PO takes time and can be complicated for an outside person (necessary to earn their trust).

#### KEY POINTS TO REMEMBER

Characterization is the preliminary stage to any advising procedure.

It concerns:

- ⇒ The profile of the organizations (collective dimension),
- ⇒ The activities of production of goods and/or services.

Combined with characterization of the environment, this method enables to piece together the activities' economy and to set up a reference situation.

#### TO GO FURTHER

- Sheet “Characterizing the VSEs - Focus on a tool for assessing POs' collective functioning”
- Sheet “Characterizing the environment”
- Sheet “Assessing the average results of the production activities”
- Sheet “Analyzing the initial state”
- Sheet “Determining and sharing the reference situation”



# Understanding

As part of a PO's characterization, a **participatory tool** enables to specifically comprehend the organization's collective functioning.

This tool's main advantage is that it can fit with different contexts.

## Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

## Goals:

- › Identifying the assessment criteria of a PO's collective functioning
- › Spotting the indicators adapted to the context that enable to define the criteria
- › Taking note of potential improvements
- › Having data to complete a PO's characterization (cf. Sheet *"Characterizing the VSEs - Example of professional organizations"*)

## Implementation conditions:

- › Understanding the global approach of a PO's characterization
- › Knowing how to lead a meeting
- › Having knowledge of the logics and forms of professional organizations
- › Having the potential necessary authorizations to achieve the surveys

# Characterizing the VSEs

## Focus on an assessment tool of a POs' collective functioning

### Principle

The assessment tool relies on a principle of rating by criterion.

The process is jointly achieved by the PO's management and the members' representatives.

Depending on the contexts, the criteria and the indicators may vary but, in any case, the tool must ensure that the PO's assessment of its collective functioning is shared with them.

These elements contribute to the general characterization of the organization as a prerequisite to any advising approach.

### Method

It is achieved in three steps:



Definition of criteria, Morocco



Assessment, Cambodia



Analysis, Laos

### TO NOTE

The assessment tool is inspired by a tool developed by the UNIDO\* as part of support programs to business organizations.

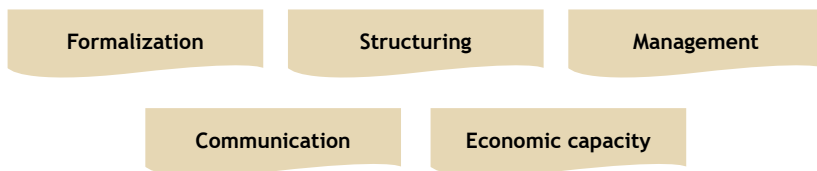
\* *United Nations Industrial Development Organization.*

## 1- Criteria and indicators identification

### 1.1- Assessment criteria

The criteria are generally linked to the data collected about the functioning of the PO (cf. Sheet “*Characterizing the VSEs - Example of professional organizations*”).

Examples of criteria that are frequently used:



### 1.2- Indicators by criterion

For each assessment criterion, it is about identifying the indicators and - for each of them - 3 to 4 levels of achievement.

For instance, as regards the structuring criterion, one indicator can be about the founding documents while distinguishing between:

- ➔ The absence of founding documents (level 1);
- ➔ The existence of founding documents that are unknown to the members (level 2);
- ➔ The existence of founding documents known to the members (level 3);
- ➔ Etc.

#### TO NOTE

The indicators are identified depending on the context.

Each level is then given a score.

For instance:

- ➔ Level 1 -> 25;
- ➔ Level 2 -> 50;
- ➔ Level 3 -> 75;
- ➔ Etc.

This scoring scale enables to have an assessment by criterion.

| i ILLUSTRATION - SCALE ELABORATED FOR A PO/ MOROCCO (1/2) |                                                         |                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Criteria                                                  | Indicators                                              | Levels                                                                                                                                                                                                                                          |
| Formalization                                             | Statutes                                                | From 1 to 4: no statutes; statutes drafted and unknown to the members; statutes drafted and known to the members; collective construction of the statutes based on common reflection                                                            |
|                                                           | Internal regulations                                    | From 1 to 4: no regulations; regulations exist but unknown to the members and not applied; regulations known and not applied; regulations known and applied                                                                                     |
|                                                           | Legal recognition                                       | From 1 to 4: no recognition; legalization procedure in progress; legalized organization; legalized organization and having a bank account                                                                                                       |
| Structuring                                               | Internal distribution of roles                          | From 1 to 4: no distribution; distribution of roles not enforced; distribution of roles applied; formalization of roles and functions (roadmap, tools...)                                                                                       |
|                                                           | Regular meetings                                        | From 1 to 4: no meetings; one-time meetings intermittently/ without programming; regular meetings; regular meetings with decision-making and minutes                                                                                            |
|                                                           | Leadership                                              | From 1 to 4: undefined leadership; weak leadership; strong and personalized leadership; strong and shared leadership                                                                                                                            |
| Management                                                | Programming, implementation and follow-up of activities | From 1 to 4: random activities, activities achieved in emergency without a follow-up; programming not respected; planned, completed and followed-up activities; planned, completed, followed-up and assessed (without readjustments) activities |
|                                                           | Filing, archiving                                       | From 1 to 4: < 25% of activities are documented and filed; < or = 50%; < or = 75%; + 75%                                                                                                                                                        |
|                                                           | Programming and follow-up of revenue/ expenditure       | From 1 to 4: absence of cash-in-hand /account; non recording of inflows and outflows; follow-up of inflows and outflows without refund; follow-up of inflows and outflows with refund and programming                                           |

## **i** ILLUSTRATION - SCALE ELABORATED FOR A PO/ MOROCCO (2/2)

| Criteria                      | Indicators                               | Levels                                                                                                                                                                                                                                                           |
|-------------------------------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Visibility<br>(communication) | Assessments completion                   | From 1 to 4: no assessment; assessment only descriptive; descriptive and analytical assessment; descriptive and analytical assessment shared with all members as a basis for decisions to make on how to proceed                                                 |
|                               | External communication                   | From 1 to 4: no external communication effort; random or occasional operations without follow-up and support; occasional operations with supports; planned and followed-up operations with supports within a pre-established strategy                            |
|                               | Relations with institutional environment | From 1 to 4: no attendance at events or meetings with institutions; occasional attendance at events or meetings with institutions; regular attendance at events or meetings with institutions; regular attendance at meetings and regular organization of events |

Etc.



Focus group with a PO, Madagascar

## 2- Focus-group assessment

Rating is achieved thanks to a focus group with members of the board and adherents. This is indeed a self-assessment practice.

During the focus group assembly, the meeting leader starts by presenting the purpose of the meeting which is to assess the collective functioning of the organization.

Then he/she presents the criteria, discusses them and explains them.

Once the criteria have been understood, the leader points out to the organization the situations representing the different levels of indicators so that it may position itself.

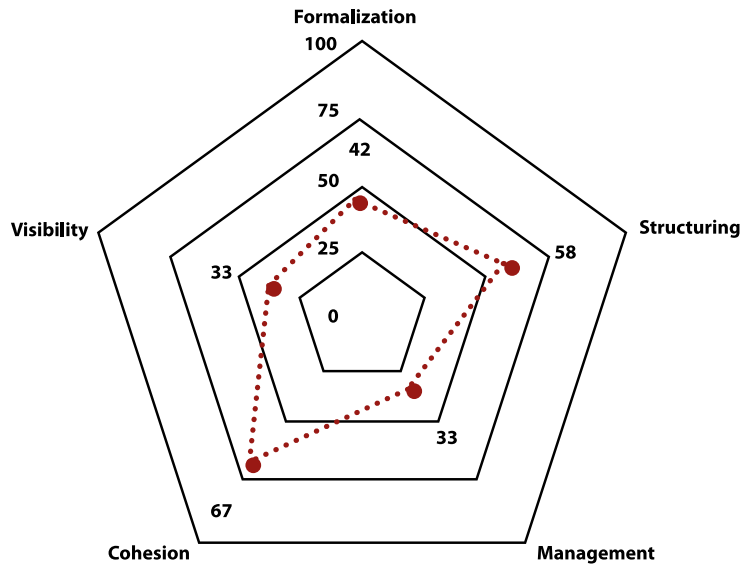
For instance, the leader asks for assessment of the share of active members in order to position the organization at one of the levels and to assign it the corresponding score.

## **i** ILLUSTRATION - EXTRACT FROM A FOCUS GROUP/ MOROCCO

| Criteria      | Indicators                                              | Levels | Grade     |
|---------------|---------------------------------------------------------|--------|-----------|
| Formalization | Statutes                                                | 1      | 25        |
|               | Internal regulations                                    | 3      | 75        |
|               | Legal recognition                                       | 1      | 25        |
|               |                                                         |        | <b>42</b> |
| Structuring   | Internal distribution of roles                          | 1      | 25        |
|               | Regular meetings                                        | 3      | 75        |
|               | Leadership                                              | 3      | 75        |
|               |                                                         |        | <b>58</b> |
| Management    | Programming, implementation and follow-up of activities | 2      | 50        |
|               | Filing, archiving                                       | 1      | 25        |
|               | Programming and follow-up of revenue/ expenditure       | 1      | 25        |
|               |                                                         |        | <b>33</b> |
| Etc.          | ...                                                     | ...    | ...       |

### 3- The analysis

Once the scores have been assigned, the meeting leader provides the members of the focus group with the results in the form of a graph.



The visual representation enables to discuss the results, possibly adjust them and validate the room for progress that must be dealt with as a priority.

#### TO NOTE

The process is done in a participative way, but the leader must ensure that subjectivity is limited as much as possible. As a matter of fact, the PO's answers can be biased or oriented (desire to please, political positioning...).

### Advantages and disadvantages

- 👍 This tool enables to link the PO with the analysis of its collective functioning.
- 👍 This tool is fast and easy to implement.
- 🗨️ This tool entails a part of subjectivity that the meeting leader may not be able to master if he/she doesn't have sufficient knowledge of the POs' logics.

#### KEY POINTS TO REMEMBER

This tool offered to assess the collective functioning of the PO is a simple tool that can be adapted to different contexts.

It has the advantage of directly pointing out the PO's weaknesses and therefore the potential room for improvement.

The elements derived from this task are to be integrated with the other elements of characterization of the PO to establish the reference situation.

Afterwards, this tool also enables to measure the progress made.

#### TO GO FURTHER

Sheet "Characterizing the VSEs - Example of professional organizations"

Sheet "Characterizing the environment"

Sheet "Assessing the average results of the production activities"

Sheet "Analyzing the initial state"

Sheet "Determining and sharing the reference situation"

# Understanding

Characterizing VSEs' environment is about describing and analyzing the environmental, economic and social elements.

It enables to analyze the context in which the VSE evolves, as a prerequisite to any advising approach.

## Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

## Goals:

- » Determining the agro-ecosystem production conditions
- » Identifying organization of value chains and interest markets for the VSE
- » Defining the financial environment
- » Describing the social context
- » Identifying the key stakeholders of the socio-professional environment, understanding their roles and relationships
- » Identifying the ICT (Information and Communication Technologies) and the opportunities they represent for the VSEs
- » Determining the environment's constraints and advantages that influence the VSEs' activities

## Implementation conditions:

- » Mastering the methods and tools for collection, processing and analysis of data
- » Having the competent authorities' consent

# Characterizing the environment

## Principle

Characterization of the environment is achieved as a complement to VSEs' characterization. It is a prerequisite to the implementation of an advising plan.

All information collected during the characterization processes must enable to establish a reference situation (cf. Sheets *"Assessing the average results of the production activities"* and *"Determining and sharing the reference situation"*).

Characterization concerns the environmental, economic and social elements in order to determine the assets and constraints that will guide the basic initial advising afterwards.

Characterization's detail level is to be adjusted while taking the available means (number of surveyors, time) and information needs into account. Afterwards, the process can be detailed for specific interests (ex. Issue of the area's professional organizations, analysis of specific markets...).

In any case, relevance of the collected information must take precedence over quantity.

Dans tous les cas, la pertinence des informations collectées doit primer sur la quantité.

## Method

It is achieved in three steps:



Collection of data on the environment, Morocco

## TO NOTE

Characterization is carried out with a set of different sources and informants, spread across the territory. It might require a substantial investigative scheme.

The findings are considered once the complete reference situation has been established (cf. Sheet *"Establish and share the reference situation"*).

## Prerequisite: framing the process

Framing a characterization is about:

- **Defining the goals** from a thematic point of view (specific themes of interest, ex. The breeding channels), from a geographic point of view (delimitation of the area), and from a quantitative point of view (number of markets of interest to characterize...);
- **Identifying and preparing the human resource** for a good understanding of the exercise and to ensure their ability to efficiently carry out the collection, processing and analysis of data;
- **Setting the agenda** (survey periods by zone, time to analyze more thoroughly and verify...).

### TO NOTE

The collection of information on the natural environment can be made relatively quickly (if secondary data exist). The collection of information related to the economic and social environments generally requires more time.

## 1- Identification of the information to collect

### 1.1- Data on the natural environment

They concern 3 categories of information.

The climate

The landscape units and the use of space

The natural resources

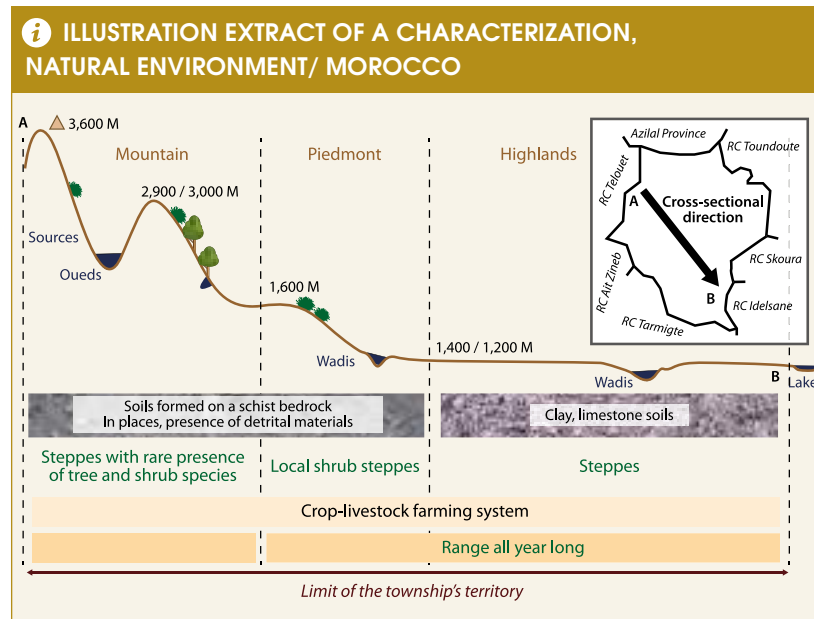
Examples of information by category:

- **Climate:** type (humid tropical, Sahelo-Sudanian...), seasons, rainfall and temperatures.
  - » *Possible detail level: seasonal rainfall and distribution of rainfall over the year, seasonal average temperatures, winds and other specific climatic conditions (cyclone periods, harmattan...)*

- **Landscape units** (slopes, plateaus, piedmont, floodplain...) and use of space: residential areas, range zones, protected areas...
- **Natural resources**, existing and available within the farm: types of soils (ferralitic, loamy...), water resources (rivers, sources, water body), biodiversity (flora, fauna).
  - » *Possible detail level for each landscape unit: soils' agronomic quality (fertile, deep, eroded, washed...), water quality (polluted, salted, drinkable...) and availability (permanent or temporary, flow, recharge capacity...), water accessibility (depth of the groundwater, remoteness...)*

The examples above are given for information purposes only and such a list is not exhaustive.

The aim is to be able to make use of the key elements regarding the natural environment that affect the agricultural activities to adjust the practices (ex. Water efficient irrigation practice where the water resource is scarce).





## 1.2- Data on the economic environment

They concern:

The markets

The marketing channels

The financial environment

Examples of information by category:

- ▶ **Markets:** location, size (local, regional, national), purpose (assembly market, consumer market...), specificities (livestock market...), types of products and volumes, type of trading (wholesale, retail), evolution of the supply area (provenance of the products by season).

» *Detail level by product of interest: evolution of quantities requested, periods of abundance and shortages, prices, quality criteria...*

- ▶ **Marketing channels** (supply channels and disposal channels): operators upstream and downstream the production, types of services provided by the operators, classification of channels (direct, short, long), existing infrastructures for storage, packaging...

» *Possible detail level: organization of transportation, distribution of margins at each resale...*

- ▶ **Financial environment:** formalization or not of trading, taxes, financial services...

### TO NOTE

The information is collected for the markets and for the products of interest for VSEs. Different criteria justify this interest: types of products sold on the market, processed volume, vicinity proximity, sales mode...

The analysis also takes specific markets into account such as the hotel-restaurant field, food-industry or cosmetics companies...

The information is given for informative purposes only and such a list is not exhaustive.

The aim is to be able to make use of the key elements regarding the economic environment that affect the agricultural activities to adjust the practices (ex. Choice of types of crops and setting of cycles depending on the markets' demand).

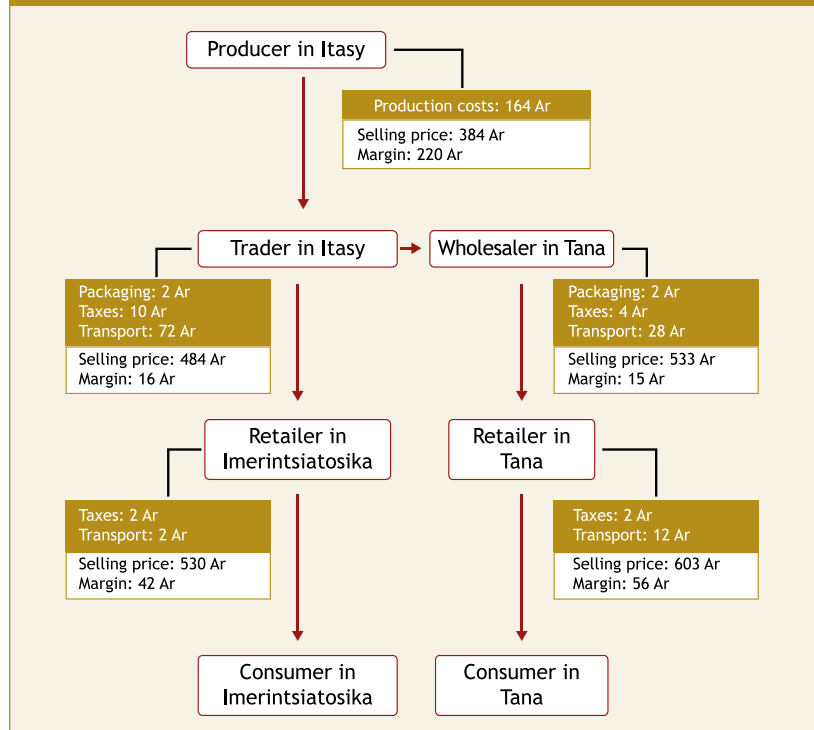


Market of Luang Prabang, Laos



Market of Trincomalee, Sri Lanka

### ILLUSTRATION - EXTRACT OF A CHARACTERIZATION, ECONOMIC ENVIRONMENT/ MADAGASCAR



### 1.3- Data on the social environment

They concern:

The key social indicators in the area

The regulatory framework, the habits and customs

The stakeholders and their relations

Examples of information by category:

- ▶ **Social indicators:** demographic trends, migratory flows, employment rate, access to basic services (education, healthcare), gender equality...
  - » *Possible detail level: inequalities between categories of population, poverty levels...*
- ▶ **Regulatory framework, habits and customs:** customary law and modern law, land law, regulations of professional organizations, laws relating to inheritance...

#### TO NOTE

Depending on the contexts, customary law and modern law may coexist, which makes understanding more complex.

- ▶ **Stakeholders and interrelations:** professional organizations, institutions, administrations, local authorities, organizations of the civil society and state services; roles of the different stakeholders and functions.
  - » *Possible detail level: connection between stakeholders, implemented activities, pricing, relationship between the VSEs and the various stakeholders...*

Like the natural environment and the economic environment, the list of information given above is not exhaustive.

The aim is to be able to assess the elements regarding the social environment that may affect the agricultural activities (ex. Mobilization of production factors such as the land in relation to inheritance or social status)



Village committee, Laos



### INFORMATION AND COMMUNICATION TECHNOLOGY TOOLS

Information to collect about ICTs: operators, existing services, network coverage, VSEs' telephone and IT equipment...

The data may vary from one context to another. The aim is to be able to identify the ICTs available within the environment, in order to implement tools or channels to distribute the information within the framework of the management advising process.

#### ILLUSTRATION - EXTRACT OF A CHARACTERIZATION, SOCIAL ENVIRONMENT/ SENEGAL

| Stakeholders        | Roles        |                    |           |
|---------------------|--------------|--------------------|-----------|
|                     | Input supply | Technical advising | Marketing |
| Groups of producers | +/good       | +/poor             | +/poor    |
| Technical services  | -            | +/good             | -         |
| Research body       | ++/average   | ++/good            | -         |
| Etc.                |              |                    |           |

|            |                                                                     |
|------------|---------------------------------------------------------------------|
| ++/good    | Stakeholder fully involved; their action satisfies all users        |
| ++/average | Stakeholder fully involved; their action does not satisfy all users |
| +/good     | Stakeholder partly involved and proves satisfactory                 |
| +/average  | Stakeholder partly involved but does not prove satisfactory         |
| +/poor     | User plays their part but does very little                          |
| -          | User not involved                                                   |

## 2- Data collection and processing

Once the information to collect has been identified, and before carrying out the survey in the field, it is necessary to look for the existing secondary data. They might be available from competent services (state services, universities...), from other development stakeholders (NGOs, research bodies...) or on the Internet.

It is about assessing the current state of available information and identifying the data to check and collect.

The task is then organized in 4 steps.

### ► Step 1: Definition of the collection methods and tools

Depending on the information (quantitative and qualitative) needs, various survey methods can be used: direct observations, focus group, semi-structured interviews with resource people, etc.

The tools are specifically elaborated for each survey method. They must be able to collect all missing information and/or to validate, by classifying it by theme (natural environment, economic environment, social environment) and by category of information.

#### TO NOTE

Some information elements, such as the ones relating to quality of soils and/or water, are collected through partnerships with specific bodies (private laboratories, public research organizations...).



The surveys must have sufficient space to develop the information, check the answers, make calculations, drawing diagrams and drawings, fill in tables...

### ► Step 2: Planning with the key informers

For logistical reasons, the information is often collected by zone. However, the diversity of the information makes it interesting to work by topic to focus surveyors' attention.

A survey by the environment component can be achieved in each area. Returning several times to a same area enables to obtain more precisions/details.

### ► Step 3: Information collection

During collection, it is important to triangulate the information (one same piece of information is asked to different categories of informants with different tools). This enables to avoid bias and to get a more precise picture of reality.

The data are written down on the collection sheets as the interviews are carried out.



### ► Step 4: Information classifying and processing

The information is processed globally in the area and is detailed by topic (market, geomorphological area, product...).

If necessary, processing of quantitative data may involve calculation of averages, minima and maxima. They can be illustrated in the form of charts, tables... Processing of substantial quantities of data can be achieved in the form of spreadsheets so as to ease the analyses.

The qualitative data are illustrated in the form of patterns, maps, diagrams...

| Ex. of processing tools for natural environment data                                                                                                                                                                           | Ex. of processing tools for economic environment data                                                                                                                                                                                                           | Ex. of processing tools for social environment data                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>⇒ Seasonal calendar, rainfall calendar</li> <li>⇒ Temperature/rainfall ratio diagram</li> <li>⇒ Transect</li> <li>⇒ Map</li> <li>⇒ Interpretation of soil and water analyses</li> </ul> | <ul style="list-style-type: none"> <li>⇒ Map and flow chart of a supply pool</li> <li>⇒ Markets map</li> <li>⇒ Flow map and diagram</li> <li>⇒ Flow chart of prices by product by market</li> <li>⇒ List of products by market, by season, by origin</li> </ul> | <ul style="list-style-type: none"> <li>⇒ Stakeholders matrix</li> <li>⇒ Venn diagram</li> </ul> |

### 3- Data analysis

The analysis of the collected data must enable to point out:

- ▶ The **environment's constraints** for the VSE: elements for which adaptation strategies must be imagined to mitigate the negative effects.
  - » **Ex. of environmental constraints:** *water shortages in the dry season (slowdown of fruit trees' growing cycle), heavy rainfalls at the start of the rain season (soil erosion)...*
  - » **Ex. of economic constraints:** *massive arrival of products on the markets during harvest periods (price decline), isolation of production areas (difficult conveyance of products)...*
  - » **Ex. of social constraints:** *ban taboo on bulb crop in March-April (the season is nevertheless favorable for crop launching), short-term sharecropping contracts (unsafety of producers in their activities)...*
- ▶ The **environment's assets:** elements that might help the VSE in its operations or in enhancing its results.
  - » **Ex. of environmental assets:** *floods in heavy rainfall season (soil fertilization through deposition of sediments washed away by waters, phytosanitary effect, development of off-season crops)...*
  - » **Ex. of economic assets:** *presence of processing facilities in the area enabling the producers to add value to part of their production...*
  - » **Ex. of social asset:** *mutual aid groups (to facilitate soil preparation works)...*

#### TO NOTE

The activities of the VSEs may emphasize or reduce the environment's constraints. The management advising must take these interactions into account.



### Advantages and disadvantages

- 👉 Characterization of the environment can be detailed for some subjects (for instance, about the economic environment, analysis limited to one type of product).
- 👉 The visual representations (patterns, graphs, maps...) generally provide a global, rapid understanding of the environment.
- 👉 Triangulating enables to have different viewpoints and to confirm the collected information.
- 👉 Depending on the contexts, access to reliable, recent secondary data can be an issue; the investigative schemes might therefore be substantial.
- 👉 The study of spatial data can be biased by strong seasonal changes that are not considered at the time of the surveys.
- 👉 Characterization of the environment, especially in its economic aspect, takes time; it is not always easy to measure out the information to look for (arbitration between completeness and efficiency).

#### KEY POINTS TO REMEMBER

Characterization of the environment must lead to the identification of the external factors that affect the activities of a VSE. The constraints and assets are considered afterwards to identify the production systems' potential improvements.

The data coming from this process also enable to reconstruct the activities' economy (combined with the information coming from characterizations of VSEs).

Finally, the environment is not fixed, it evolves. Therefore, it is necessary to follow up these evolutions (weather reports, market price list...) to perform an advising that is relevant over time.

#### TO GO FURTHER

- Sheets "Characterizing the VSEs"
- Sheet "Assessing the average results of the production activities"
- Sheets "Analyzing the initial situation"
- Sheet "Establishing and sharing the reference situation"

# Understanding

The characterization process allows to describe and analyze:

- » the VSE;
- » the environment's key elements in which the VSEs evolve.

Based on the characterizations, and thanks to deepened analyses, it is then necessary to assess the average results of the VSE's production activities to have references

## Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

## Goals:

- » Identifying some measurement indicators for the results of the production activities
- » Assessing the results of the VSE's production activities
- » Obtaining data that are complementary to the information collected during characterizations to establish the reference situation

## Implementation conditions:

- » Having the information coming from the characterizations of the VSE and of the environment
- » Knowing the basic techno-economic indicators enabling to measure the production activities' results

# Assessing the average results of the production activities

## Principle

In order to establish a reference situation, it is essential to be able to assess the average results of the VSEs' production activities relating to their environment.

There are two types of results: the technical results and the economic results.

Assessment of the results of the production activities gives some idea of the VSEs' initial level and must notably enable to identify the room for improvement by positioning these results in relation to existing standards.

## TO NOTE

Although it is about quantifying the techno-economic results to be included in the reference situation, the latter nevertheless covers all the information collected during the characterizations which will be useful to management advising: mobilized production factors, agricultural practices, agri-environmental data (soil fertility ...), social data (integration in the professional circles...), etc.

## Method

Three stages are distinguished to assess the first results of the production activities:



Technical survey, Brazil



Calculation of harvest quantities, Morocco

## 1- Identification of indicators

The technical and economic results of the production activities are generally assessed through:

- ▶ The **quantity and quality** of products;
- ▶ The **gain (or loss) generated**

These data may differ depending on the type of activities and the scale of analysis.

### Technical results Quantity and quality

**Key indicator (quantity) = yield** i.e. quantity produced by productive unit (surface area, tree, head...)

*Ex. kg of tomatoes by square meter (m<sup>2</sup>), number of plants by parturition...*

#### Necessary information:

- Size of the productive units such as cultivated area, reproductive potential... (cf. Sheets *Characterization*);
- Quantities produced (data to collect)

**Key indicator (quality) = physical state**  
*Ex. fruit size, animal conformation...*

#### Necessary information:

- Types of production and state (observations during characterizations or data to collect if the vegetative stages are not timely).

### Economic results Gain (or loss) generated

**Key indicator = economic results** i.e. difference between the expenses and the revenue. The term “margin” is used if the analysis is carried out at the scale of a cycle or of a production unit, and the term “result” if the analysis is carried out at the VSE scale.

*Ex. margin of + F CFA 53,000 for tomato cultivation; margin of + MAD 24,000 for processing of olives into oil; operating result of - MAD 1,500...*

#### Necessary information:

- Types of production and prices on the markets (cf. Sheets *Characterization*);
- Expenses and income generated considering valorization of self-consumption and intra-consumption (data to collect).

### The results can be assessed:

- At the level of the main productions described in the characterization,
- At the level of the production activities and services (vegetable growing, cattle breeding, processing of olives into oil...),
- At the level of the VSEs, it is thus necessary to have information about all activities and to reconstitute an annual profit-and-loss account.

### TO NOTE

At this stage, the results are assessed based on the declared elements reported during the characterizations. Afterwards, they will have to be developed thanks to the implementation of specific monitoring tools (cf. Part *Thorough Advising Support*).

## 2- Data processing and deepening

Coupled with the selected indicators, one must then use the information coming from the characterizations such as the types of production, the cultivated surface areas, the average size of the livestock... and complete it with deepening survey or techno-economic focus group.



Deepening interview, Morocco



Focus group, Brazil

### TO NOTE

The deepening surveys and the focus groups are held with a limited number of VSEs or by PO. For detailed techno-economic situations, it is better to create distinct surveys: by crop, by type of breeding, or by type of processed product.

During this deepening process of further study, particular attention must be brought to reliability of the information. Numerous biases exist:

- **With units:** quantities expressed in volumes (pile, box, bag...) or surface areas expressed in local units without any known correspondence to obtain the weight in kg or the equivalent in m<sup>2</sup>,
- **With temporality:** variations from season to season in terms of weather conditions and/or economic environment,
- **With often approximate values,**
- **With the orientations** given by farmers or members of the PO (reluctance to express the real results - decreased or increased - depending on their will to keep a low profile or to improve their image).

To limit these biases and obtain data that are close to reality, it is thus necessary to:

- Convert the local units in kg or m<sup>2</sup> (prior measurement work),
- Not consider the years that were exceptionally good or bad,
- Decompose the indicators (ask for the average cultivated area and the quantities harvested on this area instead of the yield),
- Obtain references for the different products in similar contexts,
- Triangulate the information.



Unit measurement, Morocco



Cross-checking data, Senegal

**TO NOTE**

During these in-depth studies, the surveyor should not judge the quality of the results assessed.

The discussion should enable to link particular conditions (practices, environment) with results.

The information is then processed through spreadsheets.

Average values are calculated by production. Groupings are possible by type of VSE (case where a typology has been established) or by zone if the natural conditions are different.

Minima and maxima can be calculated if required to get the representativeness of the average (the bigger the gap between the minimum and the maximum, the less representative the average is).

**Example of a table of average techno-economic values, Haiti**

| Crop         | Average surface area (ha) | Average produced quantity (kg) | Yields (kg/ha) | Average total costs (gdes*) | Average selling price (gdes/kg) | Average total revenue (gdes) | Average gross margin (gdes) |
|--------------|---------------------------|--------------------------------|----------------|-----------------------------|---------------------------------|------------------------------|-----------------------------|
| Red peanut   | 0.25                      | 85                             | 340            | 5,000                       | 76                              | 6,460                        | 1,460                       |
| White peanut | 0.2                       | 100                            | 500            | 6,500                       | 75                              | 7,500                        | 1,000                       |
| ...          |                           |                                |                |                             |                                 |                              |                             |

\*gdes: gourdes, Haitian local currency



Cultivation of peanut coupled with corn on ridges, Haiti

### 3- Analysis of collected data

The results assessed must be analyzed facing the area's average results (if the information is available) or facing the VSE's needs or aspiration.

The potential for improvement corresponds to the gaps and the lower the VSE's results are compared with the reference values, the more important the scope for progress.

**Ex.**

- Estimated yield of a VSE's pepper crop =  $0.5\text{kg}/\text{m}^2$ ,

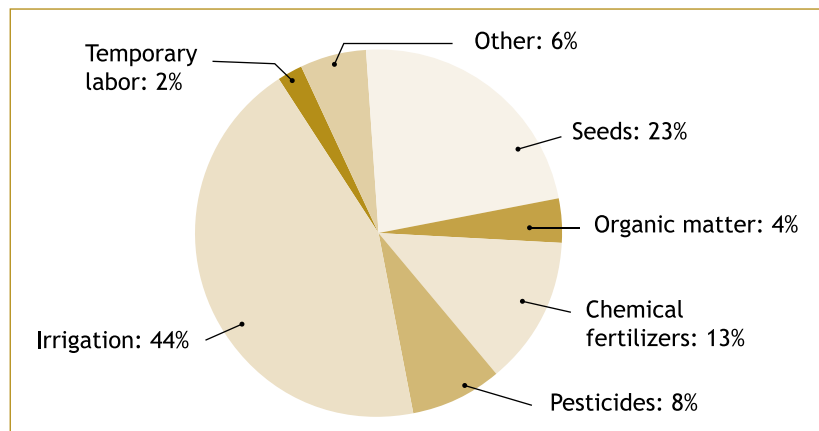
- Average yield of pepper crop in the area =  $1.5\text{kg}/\text{m}^2$   
(value derived from the consultation of secondary data).

→ *Technical progress margin identified.*

Additional analyses possibly enable to identify specific weaknesses to work on. For instance, the prominence of an expense item or the results of a production that are particularly poor compared to others...

**Ex.**

- *Analysis of the expense items, Senegal*



→ *Need to work specifically on irrigation then seeds and recourse to synthetic chemicals.*

### Advantages and disadvantages

- 👉 The techno-economic results of a VSE's production activities enable to complete the information deriving from the characterizations with numerical data.
- 👉 The detail level of these results can be adapted to the system's capacity (time and resources).
- 👉 The techno-economic results are not always easy to obtain or assess: there is a lack of secondary data or they are not updated, and the declaratory data are not always reliable.
- 👉 The advisers must have a basic knowledge of the production systems implemented in the study area, and basic skills in agro-economy to easily and rapidly spot the inconsistencies in the assessments.

#### KEY POINTS TO REMEMBER

Assessment of techno-economic results completes the information deriving from the characterizations and enables to establish a reference situation, a basis to initiate management advising.

The reference values are then compared to the results assessed after a monitoring-advising period to measure the progress.

#### TO GO FURTHER

Sheets "Analyzing the initial situation"

Sheet "Establishing and sharing the reference situation"



## Initiating the advising

Management advising must enable to take the right decisions at the right time for continuation and/or development of farming activities.

It can be started with the information from the characterization or the assessment of the average results: this is the **basic initial advising**. It will then be further developed through the analysis of the results and the follow-up of the environment's evolutions: this is the thorough advising support

In any case, the support advising targets elements of the VSE's production system (and of the collective functioning in the case of POs), while considering the profile of the entrepreneurs and the environmental, economic and social components of the environment.

### Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

### Goals:

- » Identifying the particular elements of a VSE's production system to take action in order to bring improvements
- » In the case of a PO, also identifying the particular elements of the collective functioning
- » Determining the environment's components to take into account to adjust the suggestions
- » Setting priorities

## Analyzing the initial state Approach

### Principle

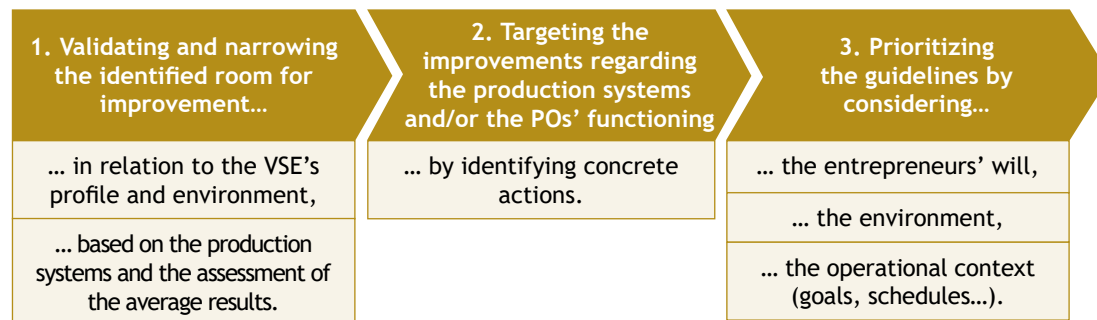
Characterization of the VSEs and the environment and assessment of the average results enable to identify:

- ➔ The key elements of the environment's economic, social and environmental components: specificities, assets and constraints;
- ➔ The key elements of the VSE's profile and of the production system: VSEs' goals and specificities, strengths and weaknesses;
- ➔ The production activities' average results.

The analysis of these elements enables to identify the room for improvement that need to be targeted to initiate the advising.

### Method

The analysis is achieved in 3 stages:



Validation of room for improvement, Morocco

## 1- Validation of room for improvement

The room for improvement identified during characterization and assessment of average results must be validated and refined in view of:

- ▶ **The elements of the environment** for actions adapted to the context  
*Ex. habits and customs affecting the agricultural calendar (sheep fattening destined to the Eid celebrations).*
- ▶ **The VSEs' profile** for actions adapted to their development capacity; the VSEs are indeed more or less inclined to bring about changes depending on their profile  
*Ex. Age that may influence the motivation to adopt new practices; gender that impacts the capacity to modify systems related to the decision-making power or inheritance rules; illiteracy that penalizes management tools handling; professional occupations of the members of a PO that impact their availability for implementation of new procedures.*
- ▶ **The farming systems** for actions adapted notably to the available production factors or to the complementarities between the activities  
*Ex. availability or not of labor force.*
- ▶ **The assessment of average results** for quantified improvements  
*Ex. 25% increase of cultivation yields; 10% increase of the turnover; 9% decrease of irrigation expenses.*

### TO NOTE

The elements of the profile are analyzed in different ways according to the sociocultural contexts.



Identification of room for improvement, Mozambique

## 2- Identification of improvements

It consists in determining concrete actions (cf. Sheet *“Analyzing the initial state - Focus on an approach to identify the solutions to suggest”*) to improve:

- ▶ The VSEs' production systems,
- ▶ The collective functioning (in the specific case of the POs).



Improvement of pepper production systems and of the running of the cooperative Sao Tomé e Príncipe

### 2.1- Improvements regarding the farming system

*For the record, the farming system takes account of:*

- ➔ The mobilized production factors (land, labor and capital),
- ➔ The crop, livestock and processing systems and the potential provision of services,
- ➔ The destination of the products.

In the examples on the following pages, the environment's components that are necessarily taken into account will be illustrated with the following color code:

 *Environnement*

 *Social*

 *Economic*

## Production factors:

| Categories | Possible types of interpretation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Land       | <ul style="list-style-type: none"> <li>→ Links <b>types of soils</b>/ choice of species, choice of fertilization or irrigation practices.</li> <li>→ <b>Land situation</b> (slope area, flood zone, access to water, nearby activities...)/ needs in specific facilities notably in the case of new crop introduction.</li> <li>→ <b>Size of the farms</b>/ choice of intensification or extension of the number of exploited production units.</li> <li>→ <b>Land parceling</b>/ distribution of the crops in space according to the number of interventions necessary to the crops. Ex. planting the crops that require the most care near the house.</li> <li>→ <b>Land status</b>/ promotion of practices requiring long-term work (ex. fertility restoration), investments (ex. anti-erosion installations), or introduction of perennial crops. In the case of plots logged on a short-term basis, preliminary securing actions need to be offered.</li> </ul> |
| Labor      | <ul style="list-style-type: none"> <li>→ Links <b>labor force availability</b>/ labor intensification strategies.</li> <li>→ <b>Labor skills</b>/ needs in training in specific areas.</li> <li>→ <b>Labor cost</b>/ choice of organization practices or modes aiming at reducing recourse to external working force.</li> <li>→ <b>Work load</b> at certain periods and <b>drudgery</b>/ planning, choice of practices or materials (or organization mode) aiming at reducing the labor need.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Capital    | <ul style="list-style-type: none"> <li>→ <b>Financial means available</b>/ size of new activities and choice of investments.</li> <li>→ <b>Indebtedness periods or liquidity shortage</b>/ organization of agricultural calendars (introduction of new offset, associated, early or delayed cycles).</li> <li>→ <b>Recourse to loan</b>/ choice of financial partners or practices aiming at reducing the debt level.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

## i ILLUSTRATION - EXAMPLES OF GOALS

### ii Accessing land and/or securing it for new activities

| Examples of actions to take:                                                                                                                                         | Environment |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| ⇒ Supporting a PO in the procedure to secure land titles to settle a processing unit.                                                                                |             |
| ⇒ Supporting a farmer in identifying plots adapted to the establishment of market gardens (land status, type of soil, protection against winds, access to water...). |             |

### ii Optimizing the use of the working force

| Examples of actions to take:                                                                                                                                                          | Environment |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| ⇒ In a context of manual irrigation with labor shortages, suggestion to resort to ridging and mulching of fruit trees to reduce watering frequency (and consequently the labor need). |             |

### ii Improving the availability of cash


| Examples of actions to take:                                                                                                      | Environment |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------|
| ⇒ Transfer of simple management tools enabling the farmers to improve the quantity of cash available for agricultural operations. |             |

**Production factors (continued from previous page):**


| Categories | Possible types of interpretation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Capital    | <ul style="list-style-type: none"> <li>→ Links <b>availability, quality and cost of external inputs/</b> supply conditions (change of location, suppliers, types of inputs with promotion of organic methods versus chemical products).</li> <li>→ <b>Production of inputs/</b> adaptation of technological itineraries to improve quality.</li> <li>→ <b>Quantity of inputs</b> (specific case of water)/ choice of practices aiming at an efficient, sparing use in relation to the available quantities and the mobilization costs.</li> </ul> |
|            | <ul style="list-style-type: none"> <li>→ <b>Nature of the equipments/</b> choice of new crops or improvement of technological itineraries (ex. Processing unit equipped with improved stoves).</li> <li>→ <b>Size of the equipments/</b> dimension of the production workshops.</li> </ul>                                                                                                                                                                                                                                                        |
|            | <ul style="list-style-type: none"> <li>→ <b>Condition of the plant and animal material/</b> renewal strategies.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                        |
|            | <ul style="list-style-type: none"> <li>→ <b>Nature of external services/</b> linking strategies (for an access to specific equipment, achievement of a practice that requires special know-how, reduction of a task's drudgery...).</li> <li>→ <b>Cost of recourse to outside services/</b> knowledge and know-how transfers or investments that would allow to do without these services afterwards.</li> </ul>                                                                                                                                  |

**i ILLUSTRATION - EXAMPLES OF GOALS**


**ii ▶ Optimizing the use of irrigation water**

| Examples of actions to take:                                                                                                            | Environment                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| ⇒ Support according to available irrigation water quantity and offer of adapted practices (irrigation mode, conservation practices...). |  |


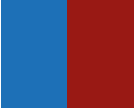
**ii ▶ Accessing adapted buildings**

| Examples of actions to take:                                                                                 | Environment                                                                         |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| ⇒ Support to poultry farmers for the building of chicken houses considering the materials available locally. |  |

**ii ▶ Having high-performance progenitors**

| Examples of actions to take:                                                                                                                                   | Environment                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| ⇒ Identification with the farmer of suppliers of breeding animals that are adapted and performing in the conditions of the environment, available and healthy. |  |

**ii ▶ Accessing necessary outside services**


| Examples of actions to take:                                                                                         | Environment                                                                           |
|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| ⇒ Helping the farmers join organizations that implement a service of facilitated access to seeds.                    |   |
| ⇒ Supporting the organizations in implementing crop grouping services to improve the members' marketing of products. |  |

## Crop, livestock, processing systems and services:



| Categories                     | Possible types of interpretation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nature of crops                | → Links <b>crop nature</b> / strategy of diversification or improvement of complementarity between the crops.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Organization in time and space | → <b>Agricultural calendars</b> / choice of practices to alleviate seasonal constraints and notably to adjust the crops to the market's needs.<br>The analysis also enables to link the harvest periods to the cashflow, and to see how to improve product spread by introducing cycles or associating the crops to get intermediate products.<br>→ <b>Spatial distribution</b> / choice of practices to alleviate soil depletion and pest pressure constraints, or to seize opportunities of land upgrading in the off-season (depending on the irrigation capacity and the adapted technological itineraries). |
| Practices                      | → <b>Technological itineraries practiced</b> in conjunction with the analysis of crops and technical results/ choice of specific practices to reinforce or to introduce, aiming at improving the results and their future repeatability.                                                                                                                                                                                                                                                                                                                                                                         |

### ILLUSTRATION - EXAMPLES OF GOALS



#### ▶▶ Adapting production to demand

| Examples of actions to take:                                                               | Environment                                                                         |
|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| ⇒ Support to identification of vegetable production adapted to the demand (type, quality). |  |

#### ▶▶ Intensifying the systems

| Examples of actions to take:                                                                                                                                                                                                               | Environment                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| ⇒ Setting the vegetable productions on the periods of market shortages and proposal of change in configuration of vegetable ridges according to seasonal constraints (concave shape in dry season, humped in rain season to manage water). |  |
| ⇒ Layout proposal (hedges, ponds, grass strips) to favor the settlement of auxiliary fauna to alleviate pest pressure.                                                                                                                     |  |

#### ▶▶ Improving the systems' resilience



| Examples of actions to take:                                                                                                                                              | Environment                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| ⇒ Identification of the effects of climate change (rain instability) and adjusting the practices to adapt to the situation (hedging, ground cover to hold soil water...). |    |
| ⇒ Suggestion of layout strategies for slope areas and drainage of lowland areas to decrease the risks of disasters related to erosion and flash foods.                    |  |

## Destination of the products:


| Categories                                        | Possible types of interpretation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sale, self-consumption and intra-unit consumption | <ul style="list-style-type: none"> <li>→ Share <b>self-consumption - sale/</b> vocation of the activities and development strategies.</li> <li>→ <b>Sales revenues/</b> intensification strategies (number of production units, yield) or valorization strategies (selling period, targeted market, sales mode, product quality).</li> <li>→ The analysis of <b>the marketing channel</b> may lead the adviser to push the VSE towards initiatives of gathering in organizations or professional networks, to better manage marketing and negotiate prices.</li> </ul> |

### ILLUSTRATION - EXAMPLES OF GOALS


#### Improving product valorization

| Examples of actions to take:                                                                                                     | Environment                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| ⇒ Support to calculation of cost price and information of the sale price in different markets to determine farmgate sale prices. |  |
| ⇒ Shifting the farmers towards processing or storage of groundnuts during low-price period.                                      |  |

#### Adjusting the consumption/ sale ratio

| Examples of actions to take:                                                                                                                                   | Environment                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| ⇒ Support to calculation of necessary cash reserve to build up (minimum prices and quantity to sell to build it up) to repeat a vegetable production activity. |  |

#### Promoting intra-unit consumption

| Examples of actions to take:                                                                                        | Environment                                                                         |
|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| ⇒ Support to implementation of stockyards to ease manure collection in order to recycle it for use in the orchards. |  |

#### TO NOTE

Some advising approaches require important investments that are hardly accessible individually; in such situations, the collective dimension (PO) may thus be sought.

## 2.2- Improvements in collective functioning of a PO

Examples of interpretations and actions to recommend as part of the management advising:

- ➔ **Legal recognition documentation:** the lack of conformity of an organization with regard to the law may hinder them from benefiting from services and opportunities. In case of non-recognition, the adviser may push an organization to initiate formalization procedures.
- ➔ **The organization's operating methods:** in case internal deficiencies are identified, the adviser directs the PO towards better administrative and financial management of its activities, reinforcement of the activities such as transparency, conflict management, archiving...; the adviser can, depending on his capacities, conduct trainings or direct the PO to an outside provider.
- ➔ **Contacts with the other organizations:** in case isolated POs do not manage to solve their problems, the adviser may organize networking and structuring into umbrella POs to overcome constraints which are hard to solve for an isolated structure (ex. Lobbying).

### i ILLUSTRATION - EXAMPLES OF GOALS

#### ii Improving organizations' internal functioning

| Examples of actions to take:                                                                                            | Environment |  |
|-------------------------------------------------------------------------------------------------------------------------|-------------|--|
| ⇒ Support to ensure conformity of the documents and legal recognition.                                                  |             |  |
| ⇒ Transfer of community life practices: democracy, leadership, transparency, conflict management...                     |             |  |
| ⇒ Transfer of adapted tools and administrative and financial management methods.                                        |             |  |
| ⇒ Support to implementation of proper communication with the environment's stakeholders and identification of partners. |             |  |
| ⇒ Support and animation for the POs' networking.                                                                        |             |  |



Reviewing the internal functioning of a village organization, Laos

### 3- Definition of priorities

Numerous deficiencies and constraints are generally pointed out during characterizations. **These problems cannot be solved all at once.** It is important to prioritize actions to act efficiently.

**The priority can be determined:**

► **By the VSE**, depending on its goals

*Ex. The priority is to improve the subsistence crop systems, notably concerning cassava, the main source of self-consumption products.*

*Ex. A VSE would like to renew its breeding flock.*

► **By the environment**

*Ex. In relation to the natural environment: the level of soil degradation requires the implementation of priority anti-erosion measures.*

*Ex. In relation to the socio-professional environment: by joining an organization, paying his contribution and participating to the collective works, a farmer can get a support group to come work on his plots.*

*Ex. In relation to the economic environment: as long as the PO has not improved its internal structuration, it cannot obtain loans to purchase a shelling facility with a bigger capacity.*

► **By the operational contexts**

*Ex. In relation to the operational means: inability to solve some problems for political, societal, cultural, climatic reasons, or because they require inaccessible economic means (case of the drainage of a vast rice-farming plain that is subject to significant floods).*

*Ex. In relation to intervention times: difficulty in solving long-term problems within a short support time frame (case of introduction of fruit production).*

*Ex. In relation to the support program direction: specific goals of some support programs (case of a program of product diversification in emerging markets).*

### Advantages and disadvantages

- 👉 Analyzing the initial situation enables the identification of the priorities and concrete actions to suggest to the VSEs.
- 👉 The analysis must consider the VSEs' goals and strategies.
- 👉 The analysis is shared with the VSEs to address their concerns.
- 👎 It is hard to be exhaustive and to integrate every aspect.
- 👎 If the operational contexts are not sufficiently connected with the VSEs' goals, the risk of non-achievement of actions is important.

#### 📌 KEY POINTS TO REMEMBER

The analysis of the initial situation targets the elements of the production system and the collective functioning of the POs to improve the activities' results.

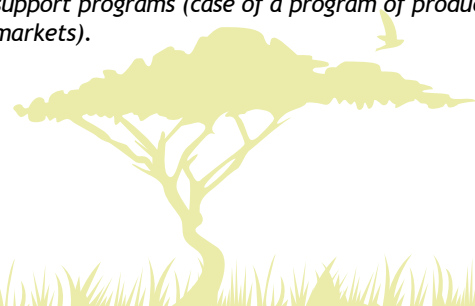
The adviser cannot solve all problems, his duty is to help the farmer or the members of the PO to identify the priorities. The support advising thus focuses on these priorities to implement the first enhancements.

#### 📄 TO GO FURTHER

Sheet "Analyzing the initial state - Focus on an approach to identify the solutions to suggest"

Sheet "Determining and sharing the reference situation"

Sheet "Accompanying the implementation of the 1<sup>st</sup> guidelines"





## Initiating the advising

The improvements suggested to the VSE can be of technical, organizational or strategical nature, according to the problems encountered, and the entrepreneurs' profiles and wishes.

Within the framework of the analysis of the initial state, an action is offered to identify solutions which are relevant and adapted to the VSEs.

### Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

### Goals:

- » Formulating solutions
- » Adapting the solutions to the context of the VSEs

### Conditions for implementation:

- » Having completed characterization of the VSE and of the environment
- » Having assessed the average results of the farming activities
- » Having validated and refined the room for improvement to achieve

## Analyzing the initial state

Focus on an approach to identify the solutions to suggest

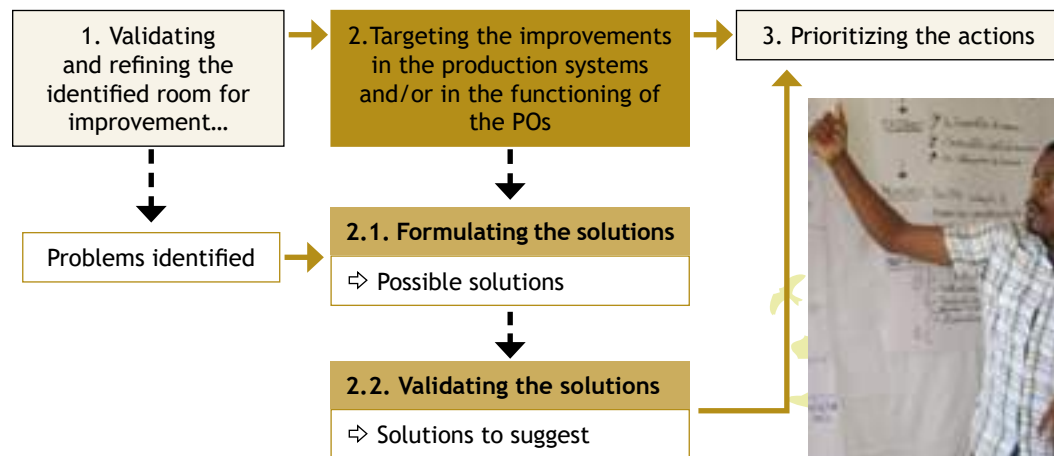
### Principle

During the analysis of the initial state, relevant and adapted solutions must be identified considering:

- ➔ The entrepreneurs' profiles,
- ➔ The production factors available,
- ➔ The complementarity of the activities and the performances of the practices,
- ➔ The products' selling strategies,
- ➔ And the environment's key elements.

### Method

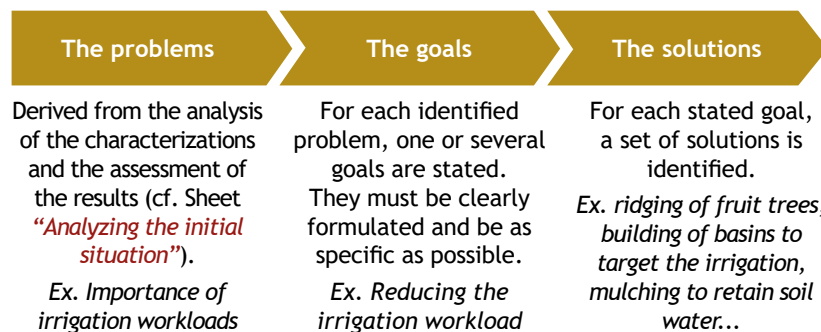
The process is based on 2 main stages: formulation of the solutions and their validation. It is implemented at the time of the analysis of the initial state, previously to the establishment of the reference situation which will define guidelines for the VSEs (basic initial advising).



Application of the approach, Haiti

## 1- Formulating the solutions

A list of solutions is compiled from 3 successive elements:



Ex. of matrix: problem/ goal/ solutions

|                  |                                                                          |                                    |
|------------------|--------------------------------------------------------------------------|------------------------------------|
| <b>Problem</b>   | Early school-leaving of farmers (haphazard management of the activities) |                                    |
| <b>Goal</b>      | Improving the management of the activities                               |                                    |
| <b>Solutions</b> | Orientation towards functional literacy programs                         | Implementation of simplified tools |

Preparation of the matrix can be done in advance, yet it is important to validate the solutions to the problems encountered with the VSEs. This will be done during the presentation of the reference situation (cf. Sheet *“Determining and sharing the reference situation”*).

The adviser may introduce innovations if necessary. These innovations will have to be explained to enable the farm holders to determine whether they address the problems encountered in an appropriate way.

## 2- Validating the solutions

Each formulated solution must be validated in terms of 2 criteria:

Relevance

Adaptation

The solution is considered **relevant** if:

- » it removes or efficiently reduces one the VSE’s constraints;
- » it improves the results of the activities (quantity, quality, margin).

The solution is considered **adapted** if:

- » it is consistent with the VSE’s profile;
- » it is achievable in terms of the production factors which can be mobilized by the VSE (needs and implementation conditions);
- » it favors complementarity between the activities (rather than competition);
- » it offers a sale strategy in line with the VSE’s goals;
- » it is achievable in the environmental, economic and social environment where the VSE operates.

**If the identified solution is judged relevant and adapted, therefore it is interesting to share it with the VSE.**



Compost making, Madagascar

### TO NOTE

The validation stage is decisive in the trust the adviser will get from the VSE and in the advising’s efficiency.

It is possible to mitigate some judgments in order not to systematically invalidate a practice that does not entirely meet all the validation criteria.

*Ex. the composting practice can be achievable in case it is limited to plots of reasonable sizes.*

Consequently, it is important to validate the practices specifically in their achievement context (crop/livestock farming system concerned) and to specify some particular implementation conditions if necessary.

### 3- Applying the method to agroecology

Agroecology is an interesting alternative for VSEs as it favors cost-effective models, coupled with local expertise and respect for the environment.

To identify the agroecological solutions, the approach is completed by an intermediary stage of statement of the management principles of the agrosystems' elements:



| Elements of the agrosystem and agroecological management principles |                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Soil</b>                                                         | <ul style="list-style-type: none"> <li>⇒ Permanent soil cover</li> <li>⇒ Fertility management based on organic supplements</li> <li>⇒ Respectful work of soil</li> </ul>                                                                                                                                                           |
| <b>Water</b>                                                        | <ul style="list-style-type: none"> <li>⇒ Responsible mobilization of the resource</li> <li>⇒ Reasonable management and use of water</li> <li>⇒ Soil water conservation</li> <li>⇒ Protection of water against agricultural pollutions</li> </ul>                                                                                   |
| <b>Plant</b>                                                        | <ul style="list-style-type: none"> <li>⇒ Adaptation of crop productions to the agrosystem</li> <li>⇒ Adaptation of crop productions to the local demand</li> <li>⇒ Managing the crop systems by encouraging complementarities</li> <li>⇒ Technological itineraries adapted to the crops' needs and environment-friendly</li> </ul> |
| <b>Animal</b>                                                       | <ul style="list-style-type: none"> <li>⇒ Adaptation of the livestock farming systems to the agrosystem</li> <li>⇒ Adaptation of the animal production to the local demand</li> <li>⇒ Managing environment-friendly raising itineraries</li> <li>⇒ Complementarity of livestock farming and crop systems</li> </ul>                 |
| <b>Landscape</b>                                                    | <ul style="list-style-type: none"> <li>⇒ Landscape planning to limit the erosion</li> <li>⇒ Revegetation of available and bare surfaces</li> <li>⇒ Maintaining biodiversity</li> </ul>                                                                                                                                             |

#### **i** ILLUSTRATION - IDENTIFICATION OF PRACTICES MATRIX, DEVELOPED IN HAITI

**System concerned:** pluvial food-producing system (cassava related) in a slope area.

**Constraint:** irregularity of the rainfalls with water shortage and water excess periods.

**Goal:** limiting damages to crops and soils because of water shortage or excess.

**Associated agroecological principles and practices:**

- » Adaptation of the crops to the ecosystem (in line with the physiological characteristics of the crops and growing cycle times) = choice of local varieties that are less sensitive to drought, choice of varieties with short growing cycles...
- » Technical itineraries which answer the crops' needs and are environment-friendly (setting cultivation calendars) = sowing date, density...
- » Soil water conservation (irregular rainfall) = organic matter input, mulching, DMC...
- » Soil protection (permanent cover) = DMC, crop combinations...
- » Erosion prevention (landscape scale) = work following the contour lines, installation of erosion-control ramps...

Each practice has been identified in relation to one goal and one principle. Validation follows the same process than the one described previously (according to the relevancy and adaptation criteria).



Layout and contour lines cultivation, Haiti

## **i** ILLUSTRATION - VALIDATION OF A PRACTICE, DEVELOPED IN HAITI

**Practice to validate:** Management of cassava cultivation on Pueraria mulch (dead cover - DMC system) in response to rainfall irregularity (water shortage and excess periods).

### **Relevancy:**

Permanent soil cover enables to store water more easily in the soil reserve (evaporation reduction, improvement of soil structure - and therefore its water holding capacity - through the work of roots and soil micro-organisms, reduction of flows). This reserve reduces water stress for cultivation.

The cover limits the impact of heavy rainfalls on the soil and run-off.

There is no pressure on natural resources (no competition between plants). On the contrary, the cover plants have a positive effect on the plant (water storage capacity is protected to face water stress), the soil (loosening and enrichment), and water (soil water preservation).

### **Adaptation to the VSE:**

Relatively simple technique (introduction of a cover plant), achievable by mobilizing the farm's production factors (small ordinary equipment enabling seeding through cover and mowing).

The Pueraria is a perennial plant, it regenerates (no need to sow at each cycle). However, do not forget to control the Pueraria with weeding.

### **Adaptation to the environment:**

The cover plant (Pueraria) grows effortlessly in the area (physiology adapted to the soil and climate conditions).

The DMC is based on crop associations which are already largely achieved in the area (acceptability). Particular attention should be paid to the potential refusal of some producers to plant a crop that does not directly generate revenues.

## **Advantages and disadvantages**

- 👉 The approach enables to identify relevant and adapted actions and thus to facilitate their adoption by the VSEs.
- 👉 The approach reduces the risk to identify unrealistic solutions.
- 🗨️ The approach can sometimes be tedious.



Practice identification process, Benin

## **KEY POINTS TO REMEMBER**

The approach must enable the adviser to question the solutions and their practicability in the context where they will be implemented.

Afterwards, the solutions will have to be explained to the producers and validated during the presentation of the reference situation.

## **TO GO FURTHER**

Sheet “Determining and sharing the reference situation”

Sheet “Accompanying the implementation of the 1<sup>st</sup> guidelines”

# Initiating the advising

The **reference situation** is established on the basis of the characterizations, the assessment of the results and the analysis of the initial state.

It enables to share the first guidelines to follow with the VSEs: this is the basic initial advising.

Afterwards, it will enable to measure the evolutions (thorough advising support).

## Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

## Goals:

- » Compiling the information on the environment, the VSEs and the assessment of the average results
- » Explaining the potentials for improvement
- » Undertaking the first advising actions

## Conditions for implementation:

- » Having the data about the characterizations of the VSEs and of the environment
- » Having assessed the average results of the farming activities
- » Having analyzed the initial state and prioritized the guidelines

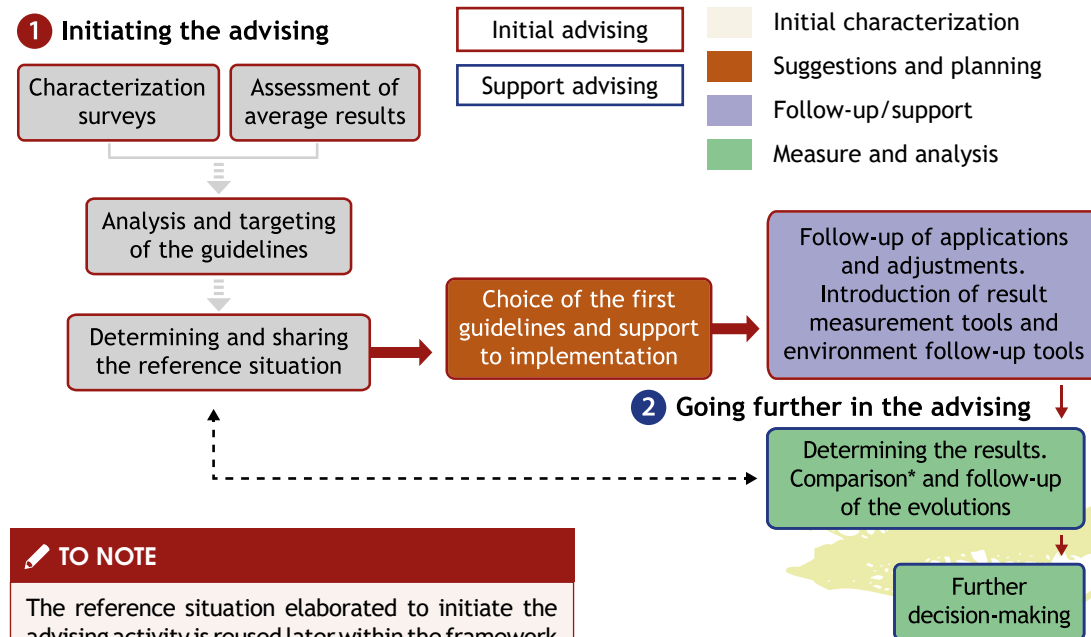
# Determining and sharing the reference situation

## Principle

The reference situation is a synthesis; it gathers:

- ➔ The information about the VSEs (cf. Sheets *“Characterizing the VSEs”*),
- ➔ The information about the context in which the VSEs operate (cf. Sheet *“Characterizing the environment”*),
- ➔ The assessed techno-economic results of the activities implemented by the VSEs (cf. Sheet *“Assessing the average results of the production activities”*).
- ➔ The solutions identified during the analysis of the initial state.

This reference situation is shared with the VSEs in order to validate the guidelines to follow.



\*Comparison with the results of the previous year and the reference situation which can itself be adjusted later if necessary.

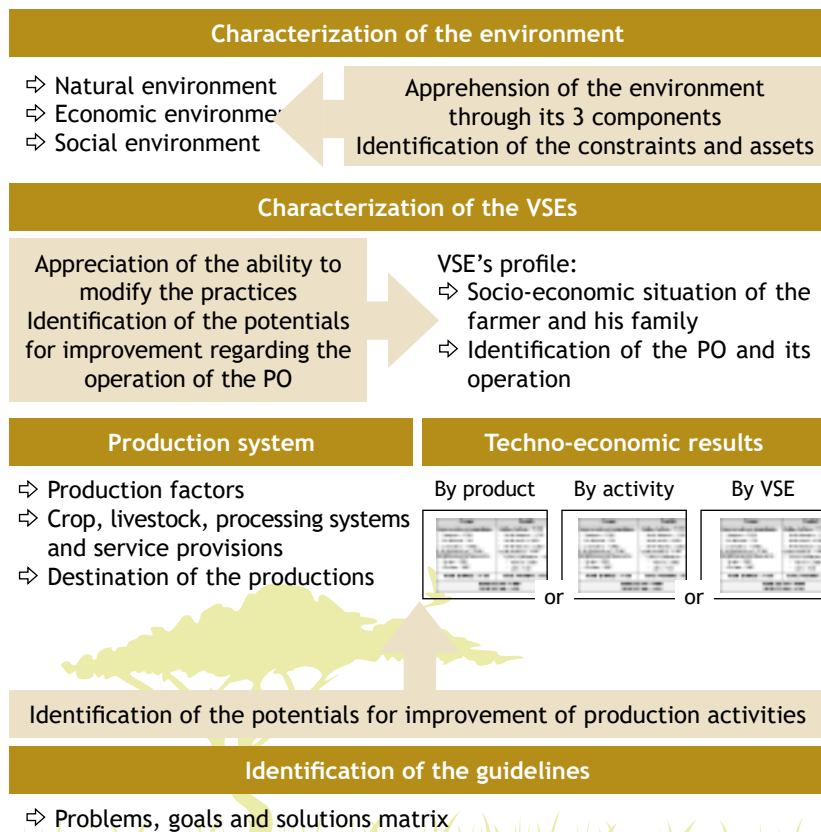
## Method

### 1- Elaborating the reference situation

The reference situation is realized for a group of homogeneous VSEs. In case a typology has been developed, the reference situation will have to reveal the groups of VSEs to take the differences into account at all levels: production system, relation with the environment, techno-economic results.

In the case of the POs, the reference situation is generally established for each professional organization.

The reference situation summarizes the following elements:



### Document's typical outline

- 1. Introduction**
  - » Context of the characterization
  - » Survey methods and tools
- 2. Characteristics of the environment (description and elements of analysis)**
  - » Natural environment
  - » Economic environment
  - » Social environment
- 3. The VSEs (description and elements of analysis)**
  - » Profile of families or PO identification sheet
  - » Functioning of the PO
  - » Production system: production factors; crops, livestock, processing systems and service provision; destination of the products
  - » Results of the production activities
- 4. Synthesis of the potentials for improvement and suggested guidelines**



### TO NOTE

The document is drafted gradually, and a provisional version is first created. It enables to share the analysis with the VSEs and to confirm the guidelines before drafting the final version. The information can be reviewed later as the environment is better understood.

## 2- Sharing the reference situation

A reference situation is shared with the VSEs in order to initiate the advising. The restitution sessions to the farmers or the members of the PO enable the adviser to introduce the information collected and the result of his analysis in a context of exchange and discussion.



Sharing of a reference situation, Morocco

The guidelines are presented and explained. They are discussed with the group to reach a decision: acceptance, adaptation or rejection of the suggested solutions.

At the end of the session, the farmers have identified solutions and taken decisions regarding their implementation. Later, a more individualized follow-up program enables the adviser to support each of them in the implementation of the improvements or to allow further discussion to finalize the decision making.

## Advantages and disadvantages

- 👉 Elaboration of a reference situation enables to have complete information to identify the first guidelines (basic initial advising).
- 👉 The reference situation is validated with the VSEs to guarantee a good, common understanding of the situation.
- 👉 The reference situation serves as a means for the adviser to initiate the advising.
- 👉 The reference situation is not static and can evolve provided that the data are updated.
- 👉 The drafting of the reference situation takes time; sometimes it is necessary to first lead concrete actions with the VSEs before sharing this situation.

### KEY POINTS TO REMEMBER

Elaboration of the reference situation enables to get complete information about the VSEs, their environment, their constraints and their room for improvement.

From this document, the first guidelines are shared with the VSEs.

Based on these discussions, individual decisions (case of farms) or collective decisions (case of POs) are taken.

After a follow-up period, the results can be compared to those of the reference situation to measure the evolutions.

### TO GO FURTHER

Sheet “Accompanying the implementation of the 1<sup>st</sup> guidelines”





## Initiating the advising

Once the reference situation has been shared, the adviser **supports the VSEs** in the implementation of the guidelines to gradually improve the farming systems and/or the POs' collective functioning.

During the support advising, adjustments are suggested if necessary.

### Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

### Goals:

- » Supporting the implementation and following up the smooth running of the production activities thanks to the proposed changes
- » In the case of the POs, supporting the implementation and following up the changes suggested to the collective functioning
- » Determining potential adjustments to address the difficulties met
- » Addressing the VSEs' concerns and supporting them in the decision-making process while the activities are under way

### Conditions for implementation:

- » Having defined and validated the guidelines
- » Showing pedagogy in the VSEs' support advising process

## Accompanying the implementation of the 1<sup>st</sup> guidelines

### Principle

The adviser helps the VSEs to actually implement the guidelines. The adviser's role is:

- ➔ To anticipate, in order to help the VSEs to plan the necessary steps to successful completion of the production and/or the PO's operation.
- ➔ To transfer his knowledge to the VSE over new practices, new methods or new tools;
- ➔ To adjust, depending on the needs, in order to manage an unexpected situation or take the environment's evolution into account.

At this stage, the support focuses on the targeted activities and the guidelines validated when sharing the reference situation. If need be, it can be extended to VSEs' specific concerns as regards the management of other productions/activities.

### Method

The support is achieved in two stages:

Support to implementation of the guidelines

Application follow-up



Pig farming technical visit, Laos



Support to plot layout, Haiti

## 1- Support to the implementation of guidelines

Various activities can be contemplated to support the implementation of guidelines within the VSE.

### 1.1- Organization of the transfer of knowledge and know-how

The adviser calls on service providers or organizes individual or group training courses himself.

During these training courses, it is important to recall:

- ➔ The improvements expected after adoption of the guidelines (new practice, new method or new tool), in accordance with the constraints identified during the elaboration of the reference situation,
- ➔ The needs for the implementation of the practice, the method or the tool,
- ➔ The prerequisites and the implementation stages,
- ➔ The potential specific focus points.

#### TO NOTE

The training time must be organized in accordance with the VSEs' activities (and especially the farmers' availability) and the agricultural calendars.

Training supports summarizing the training's key information can be handed over to the VSEs. In this case, it is necessary to make sure that their content is simple, understandable, illustrated and accessible.

### 1.2- The setting-up of models

In the case of new practices, it can be interesting to set up new models in conditions that are close to VSEs' reality (ex. demonstration plots), enabling to make comparisons with or without practice.

Thus, it is necessary to properly size these models: large enough so that the practice may have an effect but not too large to manage the risk.

For the implementation and the maintenance of these models, the adviser will emphasize VSEs' accountability.

### 1.3- Individual endowments

It might be necessary to fund some elements without, however, bear the usual costs of production; the aim is indeed to encourage, not to assist. To do so, support may be given in exchange for the farmer's commitment (which can be formalized in the form of a consideration agreement).

This support may concern:

- ➔ The achievement of costly arrangements (ex. anti-erosion installations), while favoring reproducible organization modes (ex. mutual aid groups);
- ➔ The supply of seeds or plants on the test areas,
- ➔ The supply of specific equipment necessary to the practice.



## 2- Follow-up of the applications

The follow-up of the applications is achieved in the form of visits that can be organized:

- ▶ At the request of the farmers, to address their issues,
- ▶ Periodically, on the initiative of the adviser,
- ▶ Depending on the requirements of the production schedule (ex. installation of crops, harvest, parturition, periods of epidemic risks...).

### 2.1- Preparation of the visits

Prior to the visit, the adviser must refer to the VSE's characterization files prepared beforehand. The adviser may also prepare documents that he wants to hand over: technical book, informative articles, information on the environment...

### 2.2- Conduct of the visits

The adviser makes **technical observations** (animals' health aspects, crop development, implemented practices...) and **discusses with the farmer** in order to assess the situation.

The adviser's experience enables him to draw attention on the weaknesses or the risks identified. Consequently, he leads a discussion on the necessary adjustments and possible alternatives. He can also make some recommendations regarding the need to appeal to existing external services.

If appropriate, the adviser collects useful information (photos, notes...), checks any available secondary data (reports, books...) or has analysis made to characterize the observations and identify the potential answers to bring. A second visit enables him to present the situation and identify the adequate guidelines to be followed by the VSE.

The adviser **also discusses the economic aspect of the activity** (important expenses, income earned...). He listens to the farmer with whom he discusses the constraints or successes about the activities in progress (mobilization of the production factors, destination of the products...). He identifies with the VSE the new guidelines to follow to address the constraints described or to answer the specific opportunities identified on the market (economic environment).



Follow-up visit, Cambodia

### TO NOTE

Anticipation and Adjustment:

- » the adviser takes advantage of the visit to prompt the farmers to anticipate. He makes sure that they have the necessary technical and economic elements to achieve the production stages on time and in good conditions.
- » the adviser takes advantage of the visits to help the farmers adjust their practices, methods and tools as regards the conduct of their activities and evolutions of the environment.

### 2.3- After the visits

The adviser summarizes all the formulated recommendations and defines an implementation timeframe.

It is important to take notes of the visit afterward (observations, problems encountered, support and advice provided) and to keep them in a specific file for each VSE.

If need be, another visit of the adviser can be planned.

### TO NOTE

Observations (ex. follow-up of the conduct of a meeting of the PO's board) and supports (implementation of tools and methods, advice and facilitation in the administrative procedures...) may arouse while following-up the POs.



Follow-up of a PO, Morocco

### 3- The adviser's attitude

The adviser's support enables to secure the farmers in the risks taken in the changes they make (new directions that still need to be proven).

Most importantly, the adviser must:

- ▶ **Listen to the farmers:** the discussion led by the adviser about the difficulties met in the course of the activities must enable them to identify the problems and to expose their strategies; the adviser thus analyses with them the workability of the solutions and the foreseeable effects (notably by resuming the identification and validation of solutions process);
- ▶ **Be observant and curious:** the adviser must go to the production sites to spot the potential warning signs and, even if he is not an expert in a specific area (ex. entomology), the dialogue and the observations on the spot may allow him to anticipate risky situations. For this reason, the adviser must not only observe what is visible, but also try to unlock what is not shown through dialogue in order to apprehend individual situations;
- ▶ **Be proactive:** his experience, his knowledge of the farmers' profile, of the VSE's and the environment's characteristics enable the adviser to offer solutions by analogy with other successful experiences in other contexts; the adviser thus has to clarify his suggestions and inform about the feasibility and the way to adapt them.

In any case, the decision to follow or not the recommendations rests with the farmer. This is why the support effort is important in the decision-making process and in creating a climate of trust.

#### INFORMATION AND COMMUNICATION TECHNOLOGY TOOLS

The “**agricultural advice call center**” service enables the VSEs to be advised and informed about their daily queries in the agriculture field: planting technique, types of seeds, planting times, fertilizer use or types... It is reachable with one phone call to a call center led by agronomist specialists.

**Advantage:** individual, rapid advice.

Ex. the “*Senekela*” service implemented by **Orange** in Mali.

### Advantages and disadvantages

- 👉 The adviser's visits reassure the farmers in the conduct of their activities.
- 👉 The advising enables, thanks to discussions with the farmers, to support them on the decision-making process.
- 👉 The advising can be adapted to the demand.
- 👎 At this stage of the advising, little consideration is given to the economic aspect and the follow-up of the environment.
- 👎 The number of VSEs to support does not always allow the adviser to organize very regular visits.

#### KEY POINTS TO REMEMBER

Support to implementation of the 1<sup>st</sup> guidelines is completed through the organization of knowledge transfer, the follow-up of the applications, the adjustments and anticipations. The adviser thus helps to overcome difficulties to secure the activity or rapidly react to a timely piece of information.

The adviser instigates a discussion to incite his interlocutor to identify his own solutions and validate them with him, while defining all conditions necessary to their accomplishment. He can also suggest alternatives based on his experience, his knowledge of the area or the information on the environment and discuss them with his interlocutor.

Thanks to the trust established and the regularity of the visits, the adviser can efficiently support the farmers in taking risks that imply changing their practices.

#### TO GO FURTHER

Part “Thorough Advising Support”



## Agroeconomy basics

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Analysis of the results of a livestock activity, Morocco

## 3/ Thorough Advising Support









Harvesting of yardlong bean, Cambodia

## The result indicators of the VSEs' activities





The results of the production activities of VSEs are of two kinds: technical and economic\*. **The measurement of these results** is based on **simple** or **composite indicators** (ratios), based on the data collected during the activities. There are a multitude of indicators (see *Glossary*). The choice of indicators useful to the management advising depends on the nature of the productions and the strategies of the VSEs identified during the initial advising.

\* At the environmental or social level, we will talk about effects and not results. These are analysed as part of the monitoring of the VSEs' environment.

#### Reminder:

- ➔ **The technical results** represent the physical products and their characteristics. They are linked to the production factors used (areas of cultivation, selected seeds...), to practical technical itineraries (fertilization...), to the destination of the products according to the VSE's strategies (consumption, sale on a specific market...), and to the conditions of the natural environment (types of soil, access to water, etc.). The technical results determine the VSE's ability to provide products for the family (self-consumption), for the production activity (intra-consumption) and for the markets (sale)..
- ➔ **The economic results** represent the monetary value of the products. They are linked to production costs (mobilization of paid labor...), the income from the sale of products, the value of intra and self-consumed products, and the conditions in the economic environment (market prices...). The economic results determine the ability of the VSE to finance the renewal or development of the activity and to meet the needs of the family (food security, income generated by the activities...).

### Technical indicators

The technical results relate to the quantity but also to the quality of production. They are measured through two main indicators: productivity and "quality" classification of the production.

#### 1- Productivity

It is defined as the ratio between a production and the factors implemented to obtain it. It can be calculated in relation to land, labor or capital.



Ex. *3kg of zucchini per m<sup>2</sup> (soil productivity); 35€/man-day (labor productivity); 1t/hour (productivity of a crushing unit = capital)...*

#### TO NOTE

Depending on the disciplines or currents, productivity is the ratio between the **added value** and the resources used to produce it, or between **gross production** and the resources used.

In the context of VSEs' advising, and in the contexts considered, productivity is most often calculated on the basis of gross production (kg or t of rice, number of lambs, litre of juice, etc.). This is reduced to a production unit for analysis (area, number of employees, equipment); this is the calculation of the yield (quantity/production unit).

**i DIFFERENT SITUATIONS DEPENDING ON CONTEXTS**

|                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p style="font-size: small; text-align: center;">Breeding animals, Senegal</p> | <p>The indicators differ according to the production.</p> <p>Ex. <b>natality</b> (number of pups/ total number of breeding females)</p> <p>⇒ Indicator used in breeding farms, as well as the prolificity rate (number of pups/ number of gestating females)</p>                                                                       |
|  <p style="font-size: small; text-align: center;">Cattle breeding, Morocco</p> | <p>Ex. <b>average daily weight gain</b> (quantity of meat produced per head/ number of cycle days)</p> <p>⇒ Indicator used for fattening farms where fattening time is important.</p> <p>Ex. <b>transformation rate</b> (quantity processed/ quantity of gross product) x 100</p> <p>⇒ Indicator used in transformation activities</p> |

## 2- Quality classification

The measurement of production in terms of quality is achieved through a classification of the production.

This classification can be:

- ▶ **technical**, depending on the practices implemented: reasonable use of synthetic chemical inputs, slaughter practice, etc.; the classification criteria vary according to the nature of the production and are determined in a set of specifications.

*Ex. organic farming production, halal meat, etc.*

### TO NOTE

Consumers are increasingly concerned about the origin of products and production conditions: practices that respect natural resources with low consumption of synthetic chemical inputs, etc.

Management advising must take this requirement into account and the advisor has to extend his technical analysis by systematically including the qualitative dimension in relation to the preservation of the natural environment.

- ▶ **organoleptic** (“which appeals to the senses”), according to the specificities of each product: level of acidity, aroma, size... These criteria are generally combined to define quality categories (1<sup>st</sup> choice, 2<sup>nd</sup> choice...) which can be determined by sensory assessments (visual, taste...) or by laboratory tests.

*Ex. premium quality fruits, olive oil with apple aromas...*

- ▶ **sanitary**, depending on the presence or absence of pathogens. The criteria are generally defined by legislation and their assessment is subject to chemical and microbiological analyses.

*Ex. classification or downgrading of a maize production according to its coliform content.*



Drying and sorting of coffee on canvas, Sao Tome e Principe

## Economic indicators

The gains (or losses) generated by the activities are measured through the margin or the result, which requires knowledge of the expenses and income generated during a given period.

*As a reminder: the term “result” is used if the analysis is carried out on the scale of the VSE; the term “margin” is used if the analysis is carried out on the scale of a production cycle or sub-unit.*

### 1- Expenses

There are two main categories of costs:

- ▶ **variable costs**, which increase or decrease in proportion to the volume of activity.

*Ex. purchase of seeds or value of self-produced seeds, payment of daily staff, fuel costs...*

- ▶ **fixed costs**, which are constant regardless of the level of activity.

*Ex. salary of permanent staff, payment of rents...*

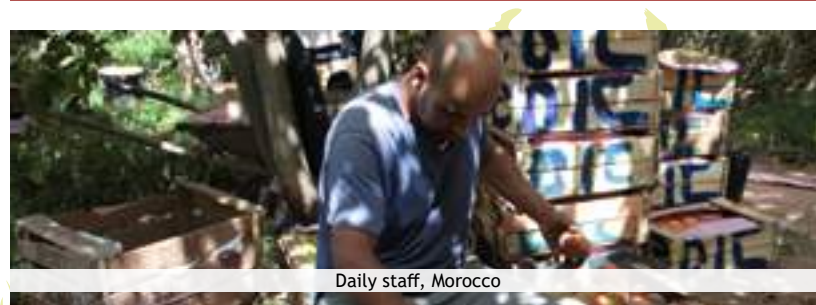
### TO NOTE

The depreciation of the investments\* (value of the investment/ potential lifetime of this investment) and financial costs (cost of a long-term loan) are also fixed charges calculated for the period considered.

*Ex. value of the annual depreciation of a plough or breeding animal.*

*\* The distinction between an investment and an operating cost is related to their temporality. An operating cost is consumed during a cycle, while an investment is made for several production cycles.*

To take the cost of an investment over a production period into account, it is necessary to allocate it according to its life span. This is the concept of depreciation.



Daily staff, Morocco

## 2- Income

The income includes:

- ▶ **the turnover**, value of sales revenue for a period of time  
*Ex. revenue from the sale of an animal, vegetables, a service...*
- ▶ **the valuation** of self-consumption and intra-consumption products during the period  
*Ex. consumption of chickens and eggs by the family, part of the harvest used as seeds...*
- ▶ **financial and exceptional income** collected over the period  
*Ex. interest received from a financial investment, grant...*

**Note:** Intra-consumption is recorded as expenses and income.

## 3- The specific case of stock changes

Stock changes (Ex. seeds, fattening animals, etc.) are calculated by determining the difference between the final value and the starting value of the stocks for a given period (year, cycle, season).

The difference in value may be influenced by a difference in quantity (Ex. increase in the number of animals during the period) or in market value (Ex. loss of value of an ageing livestock population).

If the difference is negative, the value of the change is classified as variable costs; if it is positive, it is classified as income.

### TO NOTE

The “livestock produced” is considered in the inventory as a potentially marketable product. The breeding livestock is considered in productive fixed assets as an investment (although in many contexts cull animals have a market value).

## 4- Margin and result

The margin, or result, gives a complete picture of the economic result of the activity over a period of time, taking into account:

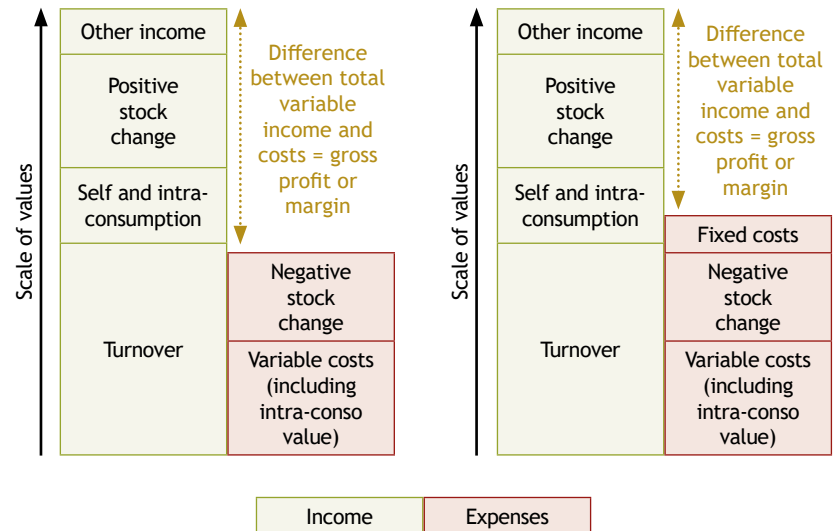
- ▶ **costs incurred** during the period **and the values of past expenses** (depreciations);
- ▶ **sales and valuation revenues** (self and intra-consumption).

Margin or result are calculated by deducting charges from income for a defined period of time. If the calculation does not take fixed charges into account, the margin or result is gross; if not, the margin or result is net.

*Gross margin or gross profit = total earned income - variable costs*

*Net margin or net income = gross margin or gross income - fixed costs*

Detail of the elements taken into account in the calculation of economic performance indicators:



## ILLUSTRATION - MARGIN CALCULATION FOR A CHICKEN PRODUCTION WORKSHOP/ CAMBODIA

| Expenses                                        | US\$       |
|-------------------------------------------------|------------|
| Variable expenses (food, veterinary care, etc.) | 130        |
| Fixed expenses (amortization of the henhouse)   | 30         |
| <b>TOTAL</b>                                    | <b>160</b> |

| Income                                                                                            | US\$       |
|---------------------------------------------------------------------------------------------------|------------|
| Turnover (sale of subjects)                                                                       | 150        |
| Value of self-consumption (number of subjects consumed x average sale price over the period)      | 50         |
| Value of the stock change (difference between the final value of the stock and the initial value) | 76         |
| <b>TOTAL</b>                                                                                      | <b>276</b> |
| <b>Gross margin</b>                                                                               | <b>146</b> |
| <b>Net margin</b>                                                                                 | <b>116</b> |

## **i** DIFFERENT SITUATIONS DEPENDING ON CONTEXTS



Temporary labor, Laos



Storage, DR Congo



Oleilocoloc investments, Morocco



Sale of processed products, Haiti

### **Variable costs:**

- ⇒ Payment of temporary labor: soil preparation, weeding, irrigation, harvesting... Family labor is not recorded in expenses (capital gain of the farm)
- ⇒ Purchase of inputs: seeds, grazing animals, phyto and zoo-sanitary products, fuel for irrigation...
- ⇒ Payment for external services: provision of veterinary or ploughing services, or specific work (Ex. tree pruning)
- ⇒ Marketing expenses: transport, taxes, etc.

### **Fixed costs:**

- ⇒ Mainly leases, rents and fixed charges (water) in the case of irrigated perimeters
- ⇒ Few employees on farms, more frequent in the case of POs
- ⇒ Low investment capacity, the amortizations mainly concern productive fixed assets, livestock or storage buildings and medium-scale equipment (power tillers, etc.)
- ⇒ Rare financial costs for farms or restricted to seasonal credits

### **Product distribution:**

- ⇒ Variable share self-consumption/ sale according to the vocation of the VSEs and the productions

### **Financial and exceptional income:**

- ⇒ Not very frequent, except for the development of project support (corresponding to grants)

### **Margin or result:**

- ⇒ Gross margin or gross profit are often included in the analyses because they enable to have an estimation of economic results that is close to reality (few fixed costs)

## **TO NOTE**

The **cash balance of a VSE** represents the money that can be directly mobilized once the revenues have been received and the expenses paid. The amount available is called the net balance. If it is not used immediately, it is stored in cash or in the bank.

The analysis of cash balance trends is based on the processing of information recorded in a cash journal and/or a bank journal. The information is analyzed each year to prepare for the next one.

Taking cash flows into account can make it possible to analyze cash movements within a VSE (inputs and outputs) to identify ways of ensuring a good match between available resources and the needs of the activities.

In family VSEs within the considered contexts, there is often a merger between family and business cash, which makes it difficult to set up a cash flows monitoring system.



Logbook, France

## Analysis of indicators

The analysis of indicators aims at understanding the results, it is achieved:

→ **by comparing simple indicators** with reference values (baseline, secondary data) or with values obtained by other VSEs, for other productions and/or other periods

*Ex. Mr Matondo's expenses are higher than those recorded two years earlier.*

→ **by comparing the composite indicators** with others; indeed, to make comparisons possible between productions or VSEs of different size, duration and nature, simple indicators must be converted to comparable units

*Ex. the margin/m<sup>2</sup>, per plant or per head: Mr Zaphy earned 5,000 Congolese Francs (Fc) for an onion production of 300m<sup>2</sup> and 4,000 Fc for a tomato production of 200m<sup>2</sup>. The margin/m<sup>2</sup> is 17 Fc for onions and 20 Fc for tomatoes.*

*Ex. the margin/m<sup>2</sup>/day of cycle: Mr Matondo earned 10,000 Fc for a 6-month tomato production of 150m<sup>2</sup> and 5,000 Fc for a 3-month lettuce production of 100m<sup>2</sup>. Tomatoes' yield is 0.37 Fc/m<sup>2</sup>/day and lettuce's yield is 0.55 Fc/m<sup>2</sup>/day.*



Comparison of indicators, DR Congo

→ **by calculating additional ratios specific** to the desired analyses

*Ex. the rate of self-consumption: 85% of Mrs Pauline's products correspond to self-consumption, her VSE is strongly focused on meeting the family's food needs, which has an impact on her ability to maintain her activities (renewal of production factors).*

→ **by analyzing the information** on which the indicators are based

*Ex. the analysis of the expenses of a yam cycle of Mr Jude shows that 55% of the expenses are related to labor and 45% to the purchase of seeds; a self-production of seeds by the miniset technique (tuber fractionation) would reduce this item.*

→ **by linking** indicators, production system components and environmental information

*Ex. linking indicators: Itasy producers obtain high tomato yields (technical performance) but the use of chemical inputs does not allow them to generate an interesting margin (economic counter-performance); the balance between technical and economic results is necessary.*

*Ex. linking indicators and changes in the environment: itinerant slash and burn crops lead to high cassava yields during the first cycle but the reduction in fallow periods no longer allows sufficient reconstitution of the forest and leads to soil deterioration.*

### TO NOTE

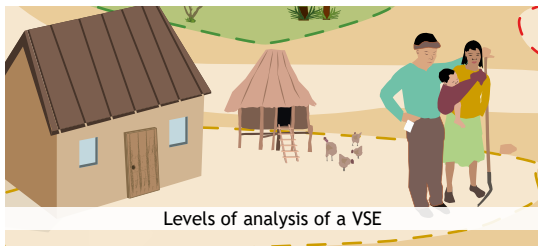
One indicator alone is necessary but not sufficient.

The management advising is based on a cross-analysis of the different indicators: quantitative/qualitative, technical/economic, timely T results/long-term results, taking into account interactions with the natural, economic and social environment.



Analysis at a farm scale, Madagascar

## The levels of analysis of the VSEs' results



**The analysis of the results** of production activities may relate to each production (eggplant, turnip, etc.), to a set of productions (fruits, vegetables, etc.) or to the entire production system (plant and/or animal production and/or processing activities).

Whatever the level chosen, the analysis always takes account of:

- » the elements of the production system: the production factors, the crop, livestock or processing systems, the services, the destination of the products;
- » the interactions with the environment (cf. sheet “*Key data of the environment*”).

## The production cycle

A production cycle corresponds to the time required to carry out a production, from its set up to its disposal (consumption or sale). The result of a production cycle is established for the duration of that cycle.

During the analyses, it is related to:

- ➔ the factors of production mobilized during the cycle,
- ➔ the cultivation, livestock or processing system implemented,
- ➔ the destination of the products from the cycle.

*Ex. case of a piglets breeding farm in Siem Reap, Cambodia*



**Production cycle:** from the date of mating to the sale of the piglets (about 90 days).

**Results:** 12 piglets sold at the end of the cycle for a margin of 450 US\$.

**Results to be analyzed in relation to:**

- » food (type, cost, quality, origin), drinking water (origin, quality), type of building (space, materials, light, humidity...), broodstock (number, breed and characteristics, age...);
- » the rearing period (and the conditions induced), feeding practices (quantity, frequency), care (vaccination, frequency of building cleaning...);
- » the sales strategy (price, type of customer, location...).

## The production sub-unit

The sub-unit is a production subsystem enabling a separation of the production system by crop, livestock or processing system, and by service.

The **result of a production sub-unit** is established for a given period (season, year). It is composed of all the results of the production cycles - or services - carried out during the period.

Just like the result of a production cycle, the result of a sub-unit is related to the elements of the production system during the analysis.

*Ex. a gardening sub-unit, in Viengkam, Laos.*



**Production cycles:** all cycles carried out during the 2015 dry season (6 months).

**Results:** 350kg of vegetables produced during the period; sub-unit margin of 400 US\$.

**Results to be analyzed in relation to:**

- » seeds, fertilizers, phytosanitary treatments (nature, quality, cost, origin), etc.;
- » the season concerned (and the conditions induced), the sequence and distribution of crops in space, the practices (compost supply, crop associations...);
- » the sale of products on the market (prices, locations, customers, etc.) and the self-consumed portion.

### TO NOTE

Although the analyses focus specifically on the factors mobilized by cycle or sub-unit, it is sometimes difficult to make distinctions (*Ex. distributing an irrigation load per crop cycle*).



## The production system

The result of a production system is composed of all the results of the production sub-units (and therefore of the production cycles).

It is established for a given period (season, year). To be analyzed, the result is also related to:

- ➔ the VSE's production factors,
- ➔ the crop, livestock, processing systems and services,
- ➔ the destination of the VSE's products.

*Ex. case of a polyculture-livestock farm in Madagascar*

**Production system** which includes an irrigated market gardening sub-unit, a rainfed food crops production sub-unit and a chicken farm.

**Results:** 15 t of agricultural products per year and 75,000 Ariary/ month.

**Results composed** of the 3 production sub-units' (market gardening, rainfed food crops, chicken farming) results, themselves composed of the different production cycles' (tomatoes and cabbage, rice, chicken and eggs) results and analyses related to the mobilized factors, the implemented practices, and the destination of the products.

### i DIFFERENT SITUATIONS DEPENDING ON CONTEXTS

Due to the diversity of the VSEs' activities, particularly agricultural holdings, it is generally preferred to analyze cycles or sub-units, and then to recompose the seasonal or annual results of the VSE.

For processing sub-units or sub-units with continuous production (Ex. laying hen breeding), monthly or campaign-long analyses are generally chosen.

In the case of POs, the evolution of collective functioning must also be analyzed. The same tool as the one suggested during the initial characterization can be used.

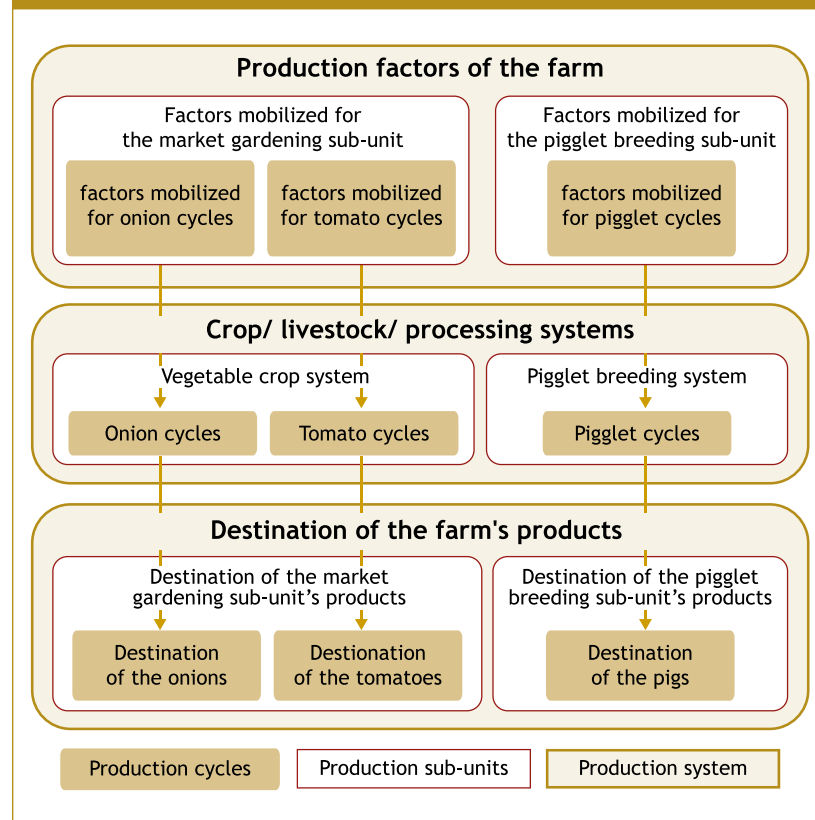


Market gardening, Cambodia

## Synthesis

The level of analysis chosen depends on the objectives of the VSE and the available resources to collect the information.

### i ILLUSTRATION - DECOMPOSITION OF A PRODUCTION SYSTEM IN SUB-UNITS AND CYCLES



### ✎ TO NOTE

Whatever the level of analysis of the results, they must also be linked to the conditions of the economic, social and natural environment.

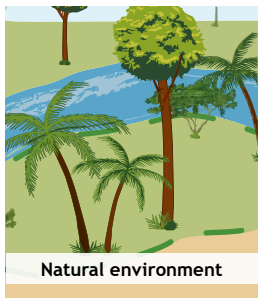




Commercialization, DR Congo

## The environment's key data





## Information on changes in the natural environment

Two categories of data are generally used in the context of the advising support to agricultural VSEs: climate data and data relating to natural resources.

### 1- Climate evolution

**Weather forecasts** (precipitation, temperatures, sunshine...)

Available in weather bulletins on TV, radio or Internet, they predict the evolution of the weather from a few days to several weeks ahead.

The advantage for farming VSEs is to be able to plan practices at the right time.

#### Climate change

Climate change disrupts the characteristics of the seasons and consequently the agricultural calendars. They are often suffered, and no precise information is available to understand them, apart from measures to strengthen the resilience of agricultural systems.

The advantage for the VSEs, supported by the advisor, is to develop their production system according to the new constraints and to implement appropriate prevention measures (climate risk management).

### 2- Evolution of natural resources

It concerns:

- ▶ **water:** quality, quantity
- ▶ **soils:** depth, structure, mineral and organic elements...
- ▶ **biodiversity:** nature and diversity of living species, proportion of individuals from each specie.

**Key environmental data** cover natural economic and social elements that influence the results of VSEs. The follow-up of these elements is necessary to enable VSEs to adapt in the course of activities or to understand the results during analyses.

In some contexts, information on environmental changes is available. In other cases, it is necessary to organize the collection and processing of this information.

It is therefore important to clearly define data needs in order to set up effective processes which are adapted to the needs of the VSEs.

The monitoring of environmental indicators is hard to implement and often requires the use of specialized external bodies.

However, some information may be available in environmental monitoring reports and specific indicators may be defined to follow-up the impact of VSEs' practices on the resources they mobilize.

*Ex. fertilization practices and soil fertility; irrigation practices and water availability.*

This monitoring enables VSEs to adapt their practices to the available resources to ensure their long-term use.

## i DIFFERENT SITUATIONS DEPENDING ON CONTEXTS

Weather forecasts exist, they can be accessible to VSEs through radio or television, but they are not always specific to the production areas and not always monitored.

Information on climate change is stated but difficult to interpret given the time scale of the changes.

Information on the evolution of natural resources generally exists for fairly large territories (national or regional level) in government strategic plans. It is observed at the local level by VSEs (water scarcity, erosion...). However, it is generally not measured.

## ✍ TO NOTE

Within the framework of the projects, the intervention time does not always make it possible to follow-up the evolution of the environment (Ex. time required to restore the fertility of a soil according to its level of degradation).

## Information on changes in the economic environment

### 1- Changes in market supply

The information useful to VSEs concerns the supply conditions of the markets: nature of the products, quality and quantity, price, origin...

It is sought by VSEs in order:

- ▶ to make a real-time sales decision, identifying the best sales opportunities;
- ▶ to plan production a posteriori, targeting opportunities (periods of high prices, nature or quality of products requested, differences between markets...).

### 2- The evolution of value chains

VSEs also seek information on operators upstream (input suppliers, financial services, etc.) and downstream (processors, dealers, etc.) of production.

It is available by word of mouth, within professional networks, during advertisements or inter-professional meetings.

The interest for the VSE is to develop its production system in line with the opportunities in the context of fast-evolving agricultural segments.

#### **i** DIFFERENT SITUATIONS DEPENDING ON CONTEXTS

- ⇒ “market” information often remains out of reach for VSEs, despite the development of communication technologies.
- ⇒ VSEs are often suspicious of other value chains’ actors.



Posting of “market” newsletters, DR Congo

## Information on changes in the social environment

### 1- Changes in the regulatory framework

They concern information relating to the legislation of VSEs, to the labor code...

*Ex. change of the rules for the registration of POs with the administration, revision of the amount of the legal minimum wage...*

This information is published and made public at information meetings or communiqués. It is useful for VSEs which must comply with these rules to carry out their activities without risk of sanction or exclusion.

### 2- Changes in the socio-professional environment

They concern information relating to farming professional organisations, administration, government services.

*Ex. new services for collecting products available in the area and conditions of access, subsidy mechanisms and incentives aimed at orienting production, initiatives to group VSEs, training offered by technical services or other development actors...*

This information is disseminated during information meetings, announcements, workshops, advertising... It is useful for VSEs to seize opportunities (Ex. subsidies), take advantage of new services, pool services, or develop or defend professions.

#### **i** DIFFERENT SITUATIONS DEPENDING ON CONTEXTS

Information on the socio-professional environment is more or less available by word of mouth or through communications from government services or NGOs.

Information is generally better disseminated within POs that are recognized and therefore invited to information meetings.



Professional workshop, Gabon

As part of the monitoring of environmental changes, information and communication technologies (ICTs) facilitate the dissemination of information.

These technologies are increasingly present in intervention contexts; they operate using telephony or the Internet.

**Agrisud** and **Orange** wish to use these opportunities to better manage information on changes in the environment.

In this context, various services have been devised in Madagascar:

**“Agricultural alert” service** (natural environment) to manage a pest attack: VSEs or technical service agents can send an alert message to their network as soon as they notice the presence of locusts.

**“Price information” service** (economic environment): the prices of the products recorded on the markets are centralized on a server and then broadcast on request, by sending an SMS specifying the product and the area of interest.

**“Linking” service** for provision of services, technical training (socio-professional environment): a VSE sends a service request by SMS to a server. The latter answers by SMS by transmitting to the VSE the contact of the nearest master-operator who is able to answer its request.

## Synthesis

| Data                           | Time scale and sources of information                                                           |                                                                                                                                                    |                                                                                             |
|--------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
|                                | Short term<br>(day, week)                                                                       | Medium term<br>(season, year)                                                                                                                      | Long term<br>(several years)                                                                |
| Climate                        | Weather forecasts available on radio, TV, Internet                                              | Meteorological data available on Internet (past period); no forecasts                                                                              | Scientific study reports on climate change available in hard copy or on the Internet        |
| Natural resources              | Spot analysis or monitoring reports, carried out by laboratories on order and based on sampling |                                                                                                                                                    | Impact studies available from competent technical operators and services or on the Internet |
| Markets                        | Price bulletins available from chambers of agriculture, technical operators, ICT                | Market research reports resulting from the collections and available at the level of chambers of agriculture, technical operators, on the Internet |                                                                                             |
| Value chains                   | Word of mouth, professional networks, advertising, ICT, interprofessional meetings              |                                                                                                                                                    |                                                                                             |
| Regulatory framework           | Legal texts, information meetings, communiqués                                                  |                                                                                                                                                    |                                                                                             |
| Socio-professional environment | Awareness messages, advertising, radio, TV, internet announcements, ICT or word of mouth        |                                                                                                                                                    |                                                                                             |

Natural environment

Economic environment

Social environment



# Assessing the results

# Technical results

## Focus on return calculation

The **yield** (quantity produced brought back to the numbers of production units) is a technical indicator expressed as a ratio that makes it possible to assess the results of a production activity from a quantitative point of view.

Within the framework of the management advising, the calculation of yields at regular intervals makes it possible to measure the performance (or counter-performance) of VSEs in order to suggest guidelines for improving or maintaining the results over the long term.

### Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

### Goals:

- » Identifying the data to be collected to calculate the yields
- » Implementing a recording device
- » Calculating the yields which will then be analyzed in the framework of the advising

### Conditions for implementation:

- » Knowing the basic concepts of agroecology (cf. *Glossary*)
- » Having weight and size measuring equipment

### Principle

The yield varies according to the type of production: kg/m<sup>2</sup> (t/ha) or kg/plant for crops, kg/head or average daily weight gain for fattening farms; number of pups/head for cow-calf farms; litres/head for dairy farms; litres/t of raw products for processing activities, etc.

It has the advantage of being relatively simple and easily understandable when it is correctly chosen (in relation to the nature of the productions, the vocation and the dimension of the activities concerned) and properly calculated.

In order to provide quality advising, the advisor should include in his analysis with the VSEs:

- ➔ all the elements that can influence yields: breeds, varieties, environmental conditions and implemented practices,
- ➔ other technical indicators: quality of production, sustainability of results linked in particular to the sound management of natural resources,
- ➔ economic indicators: expenses, income and margins,
- ➔ entrepreneurs' economic and social strategies: income improvement, social prestige, risk management, etc.

### Method

Three steps are distinguished in the implementation of a regular yield calculation system:



## 1- Identification of the data to collect

### Reminder:

VSEs, and particularly farms, are characterized by the diversity of their production. As it is difficult to measure all yields, the advisor and entrepreneurs make the choice of productions to follow; this choice is generally made at the time of initial advising on the basis of the importance of a production, a market opportunity...

For each selected production, the nature (Ex. apples), breed or variety (Ex. Golden) are specified.

The data to collect afterwards concern:

- ▶ the produced quantities,
- ▶ the number of units put into production (headcount/area),
- ▶ if necessary, the production time (duration of the period).

### Examples of yields per production

| Productions            | Yields                           | Calculations                                                                              |
|------------------------|----------------------------------|-------------------------------------------------------------------------------------------|
| Market gardening       | Vegetable yields                 | Quantity produced/ surface area (in kg/ m <sup>2</sup> )                                  |
| Food crops             | Food product yields              | Quantity produced/ surface area (in kg/ m <sup>2</sup> , t/ are or t/ ha)                 |
| Fruit crops            | Fruit yields                     | Quantity produced/ surface area or/ plant (in kg/ plant, t/ ha)                           |
| Meat farms             | Average daily weight gain (ADWG) | (Final weight - initial weight of an animal)/ number of days of feed (in kg/ animal/ day) |
| Breeding farm          | Weaning rate                     | (number of offspring weaned/ number of females of reproductive age x 100 (in %))          |
| Dairy farms            | Milk yield                       | Number of litres of milk/ number of producing females (in litres/ head/ cycle)            |
| Laying hen farms       | Egg-laying rate                  | Number of eggs/ number of laying hens (in unit/ head/ day)                                |
| Processing of products | Processing rate (%)              | (Total quantity of processed products/ total quantity of raw products) x 100              |

### TO NOTE

It is interesting to assess the quantities lost:

- » during the cycle (animal production): brought back to the total number of animals, it is possible to calculate a mortality rate,
- » in post-harvest (plant production): brought back to the total quantity, it is possible to calculate a loss rate.

These elements are to be integrated into the analysis of the technical results.

## 2- Data collection

### 2.1- First option: the recording of declared data

VSEs record the information identified as necessary to the calculation of yields (produced quantities, number of production units, starting and end dates of the considered period). The advisor then collects these data.

### Example of a data-collection table

| VSE            | Production | Number of units | Starting date | End date | Produced quantities |
|----------------|------------|-----------------|---------------|----------|---------------------|
| Stephan Rakoto | Rice       | 0.75 ha         | 7 March       | 10 July  | 40 bags             |
| Daniel Mahery  | Beans      | 0.5 ha          | 3 January     | 15 March | 16 bags             |

Many biases can occur with this method:

- **bias related to the units:** the usual units to measure quantities are generally volume units (Ex. glass, cart, basin, heap...) or counting units (Ex. a dozen banana bunches...). These units, which differ in size, are not standardized.
- **bias related to commercialization methods:** some crops are sold before harvest (Ex. sale of standing fruit or cassava in the field).
- **bias related to the number of production units:** the area of parcels or number of trees in orchards are approximately estimated.
- **bias related to data recording:** entrepreneurs forget to note harvests, may have difficulty assessing volumes or are reluctant to report all information (discretion with regard to others...).

It is therefore important to take measures to limit these biases, notably by calibrating the usual units and regularly recording information.



**Calibration**, limited to the biases related to the usual units, consists in establishing a conversion table from the usual units to standard units. For each unit and each product, at least 3 samples are measured.

**Example of measurements of cassava cossette units, DR Congo**

| Unit of sale             | Weighing 1 (kg) | Weighing 2 (kg) | Weighing 3 (kg) |
|--------------------------|-----------------|-----------------|-----------------|
| Cassava bag (enlarge)    | 70              | 65              | 75              |
| Cassava bag (Midema)     | 50              | 48              | 52              |
| Cassava bag green stripe | 64              | 70              | 58              |

From these weighings, averages are calculated and a conversion table is drawn up: the produced quantity data declared by the entrepreneurs are converted into standard units.

**Example of a conversion table for cassava, DR Congo**

| Unit of sale     | Cossette cassava (kg) |
|------------------|-----------------------|
| Bag (enlarge)    | 70                    |
| Bag (Midema)     | 50                    |
| Green stripe bag | 64                    |

**The regularity of surveys**, limited to biases related to registration by entrepreneurs, enables to regularly record information on the field, particularly with regard to complex crop systems (Ex. agroforestry systems, crops associations, etc.).

During the visits, the adviser checks that all data are recorded, in particular those relating to the quantities collected for self-consumption (regular verification is preferable to a single final evaluation).



Verification of recorded data, Morocco



Calibration, Cambodia



Calibration, DR Congo

**2.2- Second option: yield measurement**

The yield measurement can be carried out on all productions (in the case of small quantities) or on a sample (a few plants, a few heads, a portion of cultivated area...).

In the case of sampling, it must be representative: 10% of the monitored VSEs, 5% when the number is large (>200 sub-units or production cycles monitored).

*Ex. For every 100 plots monitored in cassava, at least 10 are chosen to carry out yield measurements.*

### 2.2.1- The yield measurement for medium and short cycle vegetable productions

In the case of medium and short cycle plant production (vegetable farm types, food crops), the yield measurement is carried out for a limited area from each monitored plot. This limited area is called “yield square”.

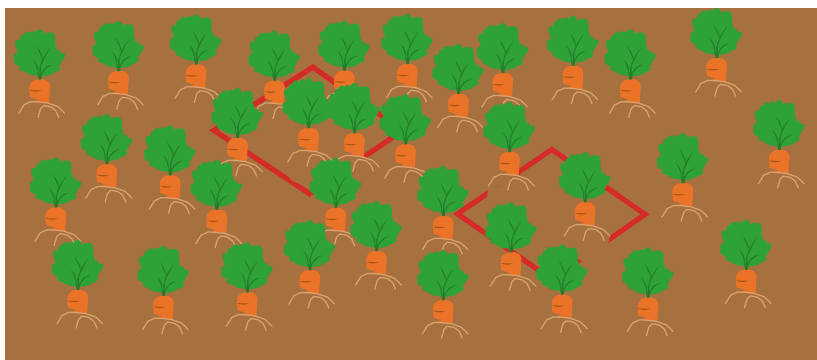
➔ **Step 1: Identifying the harvest periods of the monitored products and the plots to be evaluated.**

➔ **Step 2: For each plot, materializing a representative surface of the plot** (10m<sup>2</sup> minimum in food production, 1m<sup>2</sup> minimum in market gardening). It is important not to be influenced by subjective criteria (most or least productive part) and to avoid borders (“border effects”).

» *Materializing the plot with stakes, a rope or a frame.*

» *In case of significant heterogeneity within the parcel, choosing several collection squares (the final value will correspond to the average of the different squares).*

*Ex. carrot plot with high heterogeneity:*



➔ **Step 3: Reaping the production of each square.**

» *The productions are collected at maturity (just before the harvest).*

» *For some productions, carry out the necessary operations to correspond to the standards in which yields are expressed (cleaning, milling of ears of corn, removal of tops, etc.).*

➔ **Step 4: Weighing the collected quantity for each square.**

» *Prioritize the use of scales adapted to the weight scales to be weighed to avoid inaccuracies: no more than a factor of 10 between the weight to be weighed and the capacity of the scale (Ex. 100kg maximum scale to weigh 10kg minimum).*

➔ **Step 5: Save the data.**

» *Record the reference of the monitored plot: date of measurement, locality, concerned VSE, particularities and state of the plot.*

» *Record the square surface area and the quantity weighed.*

» *If several yield squares are collected from a parcel, record the sum of the areas and the sum of the quantities weighed.*

#### Example of record sheet, Niger

| Date     | VSE            | Village     | Zone        | Crop/<br>Variety    | Weighed<br>quantity<br>(kg) | Measured<br>surface<br>(m <sup>2</sup> ) | Obs.            |
|----------|----------------|-------------|-------------|---------------------|-----------------------------|------------------------------------------|-----------------|
| 13/04/13 | Ibrahim Zoubga | Mainé Soroa | Oasis basin | Cabbage/<br>KKcross | 6.2                         | 1                                        | Attacked fruits |
| 16/04/13 | Adama Yeho     | Diffa       | Flood plain | Rice/<br>local      | 10                          | 50                                       | Good plot       |
| 18/04/13 | Maïmouna Issa  | Geskerou    | Oasis basin | Niebe/<br>mix       | 9                           | 300                                      | -               |

#### TO NOTE

In order to facilitate subsequent yield analysis, additional information can be collected and used to create categories:

» the implemented practices (fertilization mode, feeding method...).

*Ex. conventional maize yield = 1,400 kg/ha; agroecology yield = 1,500 kg/ha*

» environmental conditions: soil quality, geomorphological zone, climatic events, pest pressure...

*Ex. cassava yield in slope area = 9t/ha; in plain area = 15t/ha.*

Medium and short-term crops have some **specific characteristics**:

- ➔ **Crops whose value or harvest is spread over a long period after maturity** (Ex. manioc, taro): record of data as early as the maturity of the production.
- ➔ **Associated crops** (Ex. cassava associated with niébé, maize, pigeon pea): the harvested quantity is the sum of the quantities of each crop present in the association. In this case, it is important to reference the associated crop systems and to record the data for all crops in the system as they occur.

### 2.2.2- Measuring crop yields for perennial and semi-perennial crops



Pear harvest, Morocco

The “square” measurements are replaced by measures per plant. There is often a fairly high degree of heterogeneity between plants (masked by the number of individuals in the case of medium and short cycle crops).

In the case of orchards with **different varieties of trees**, samples are taken by sampling each variety. The orchard yields are then established taking into account the proportion of each variety.

### 2.2.3- Measuring livestock yields

In the case of livestock farms, “square” measurements are replaced by individual measurements (per head).

- ➔ **In the case of fattening farms:** the measurement takes place at the beginning of the cycle (initial weight) and then at the end of the cycle (final weight). Yield is obtained by the difference between these two weights and bringing them back to the number of days spent between the two measures.

It is also possible to use body measurements and abacus (grid for converting body measurements into weight).

*Ex. estimation of the quantity of meat from the animal's measurements (barymetry).*



Body measurements, Laos



#### TO NOTE

In the case of dairy, laying or breeding farms, the surveys are carried out regularly and exhaustively as production progresses (for each milking day, for each birth...). As the advisor cannot be present all the time, the records are done by the farmers themselves.

- » **In the case of dairy or laying farms:** the yield is evaluated on the basis of the values obtained from daily milking or laying. The performance indicator is brought to the duration of the cycle period.

*Ex. number of litres of milk/head/day for the lactation period.*

- » **In the case of breeding farms:** the count of pups takes place as the number of births progresses to assess the birth rate; the number of births can also be monitored to assess the prolificity rate. After weaning, the number of pups ready to be sold is recorded to evaluate the number of survivors and to calculate the mortality rate.

### 3- Data processing

#### 3.1- Processing of declared data

From the data declared by the entrepreneurs, yields are established by production for each monitored VSE.

The calculation gives an approximate idea of the yield, but the high variability of the usual units does not always enable sufficiently precise values to be obtained.

*Ex. from one VSE to another, the size of the bag extension and the filling of the cassava bag differ and make the weight vary by + or - 7kg which then impacts the calculated yield.*

#### 3.2- The processing of yield measures

##### 3.2.1- Calculation of individual yields

From the measured data, yields are established per production for each monitored VSE.

| Systems         | Calculations                                                                                                                                                                                                                                                   |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fattening farms | ⇒ Average final weight - average initial weight/ average number of fattening days<br>Ex. fattening of a breeding of 3 pigs for the duration of a 6-month cycle: (average final weight of 120kg - average initial weight of 40kg)/ 6 months = 0.44kg/ head/ day |
| Breeding farms  | ⇒ Birth rate: number of born pups/ number of female breeders<br>Ex. the birth rate of a goat herd of 30 female breeders: 50 born pups/ 30 female breeders = 1.67 pup/ female                                                                                   |

##### 3.2.2- Calculation of average yields per production

On the basis of all the individual average yields measured, average, minimum and maximum values per production and per season are calculated:

#### Examples of individual calculations

| Systems                            | Calculations                                                                                                                                                                                                                     |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Medium and short cycle crops       | ⇒ Sum of weighed quantities/ sum of surface area of the "squares"<br>Ex. Yield of 3 "squares" of 1m <sup>2</sup> of onions (2.7kg + 3.3kg + 4kg)/ (1m <sup>2</sup> + 1m <sup>2</sup> + 1m <sup>2</sup> ) = 3.33kg/m <sup>2</sup> |
| Associated crops                   | ⇒ Sum of quantities weighed for each crop/ sum of surface area of the "squares"<br>Ex. Yield of 3 "squares" of 10m <sup>2</sup> of beans/ corn: (18kg of corn + 24kg of beans)/ (30m <sup>2</sup> ) = 1.07kg/m <sup>2</sup>      |
| Perennial and semi-perennial crops | ⇒ Sum of quantities weighed for each plant/ sum of concerned plants<br>Ex. An orchard with 100 apple trees: total of 755kg harvested / 10 trees = 75.5kg / tree                                                                  |
| Dairy (or laying) farms            | ⇒ Sum of measured quantities/number of animals concerned/ number of cycle days<br>Ex. Daily milk yield of 10 animals: 35,000L of milk / 10 cows / 305 days = 11.47L /cow /day                                                    |

| Date     | VSE            | Village     | Zone        | Crop/ Variety    | Weighed quantity (kg) | Measured surface (m <sup>2</sup> ) | Yield (kg/m <sup>2</sup> ) |
|----------|----------------|-------------|-------------|------------------|-----------------------|------------------------------------|----------------------------|
| 13/04/13 | Ibrahim Zoubga | Mainé Soroa | Oasis basin | Cabbage/ KKcross | 6.2                   | 1                                  | 6.2                        |
| 16/04/13 | Adama Yeho     | Diffa       | Flood plain | Rice/ local      | 10                    | 50                                 | 0.2                        |
| 18/04/13 | Maïmouna Issa  | Geskerou    | Oasis basin | Niebe/ mix       | 9                     | 300                                | 0.03                       |



| Crop    | Variety | Average yield (kg/m <sup>2</sup> ) | Minimum yield (kg/m <sup>2</sup> ) | Maximum yield (kg/m <sup>2</sup> ) |
|---------|---------|------------------------------------|------------------------------------|------------------------------------|
| Cabbage | KKcross | 3.7                                | 1.8                                | 6.5                                |
| Rice    | Local   | 0.2                                | 0.06                               | 0.44                               |
| Niébé   | Mix     | 0.06                               | 0.03                               | 0.1                                |

## TO NOTE

In the context of group advising, the average data per production are sufficient for the analyses, and it is not necessary to carry out measurements for all the VSEs monitored.

In the case of individual yield calculation from declared data, it is interesting to compare these yields with the average, minimum and maximum values calculated per production. If the 'declared' yield seems to be aberrant (much higher or lower value), it is necessary to search for additional information from the farmer to verify that there is no miscalculation.

Finally, from the average yields, it is possible to assess the produced quantity by VSE if the number of production units is known: produced quantity = average yield x number of units.



Promising yield of an apple tree, Morocco



Strawberry plant production, Bali



Chicken breeding production, Cambodia



Evaluation of the production, Brazil

## Advantages and disadvantages

- 👉 The measurement of yield squares is simple to set up.
- 👉 The implementation of a yield measurement system for a representative sample of a production provides a reliable estimate of yields.
- 👉 The yield estimates obtained from samples can be used for group advising.
- 🗨 Biases in the quantities and number of production units can distort calculations and jeopardize the quality of analyses.
- 🗨 It is not always possible to carry out yield measurements for all the productions monitored.

## KEY POINTS TO REMEMBER

It is important to implement appropriate measurement systems to minimize bias and calculate reliable yields.

The yield gives an interesting technical indication but is not enough.

Good yield values can be reached, and the margin can be low due to overuse of inputs (too high costs). Similarly, good yield values can be reached but represent a significant workload (causing discouragement of the farmers).

The analysis of the yield must therefore be linked to other technical, economic, environmental or social data. These data are the factors that drive performance development.

## TO GO FURTHER

Sheet "Technical results - Focus on crop classification"

Sheet "Economic results - Focus on margin or operating income calculation"

Sheet "The Techno-Economic Monitoring (TEM) process"

Sheets "Monitoring the environment" and "Advising"



# Assessing the results

The **classification of productions** is a technical indicator that makes it possible to assess the results of a production activity from a qualitative point of view.

This classification is carried out through criteria that vary according to the production considered and consumer demand.

Often set aside in favor of quantitative indicators, quality is nevertheless a determining element of management advising, notably to promote the proper valorization of products and/or to ensure the sustainability of the results.

## Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

## Goals:

- » Identifying simple quality measurement devices
- » Collecting data and classifying the productions
- » Providing qualitative indicators that will then be analyzed as part of the management advising process

## Conditions for implementation:

- » Being aware, if it exists, of the legislation relating to processed products or labels
- » Possibly providing competent services in the VSE's environment to conduct analyses

## Principle

The quality of a product can be defined as all its properties and characteristics that give it the ability to satisfy consumer needs. It is measured through the classification of products which can be technical, organoleptic or sanitary (see sheet *"The result indicators of the VSEs' activities"*).

Depending on the type of classification, it is necessary to use third party skills, such as sanitary classifications and biological certifications, or to set up simple quality measurement systems (size, appearance, taste, etc.).

In all cases, the advisor analyzes with the VSEs the qualitative results in relation to the other technical and economic indicators.

## TO NOTE

In the considered contexts, and on a VSE scale, standards defining the sanitary quality of products and certification systems guaranteeing their technical quality are rare or poorly applied (except for products intended for export). This situation is generally due to a lack of operational means and/or control mechanisms.

However, organoleptic criteria are frequently invoked by consumers and alternative labelling systems are developing today in relation to environmental protection, farmers' fair remuneration, etc.



Turnip harvest, Senegal

## Method

### 1- The device for measuring organoleptic quality at harvest time

Depending on the nature of the production and its destination, different organoleptic criteria can be taken into account: size of an apple, physiognomy of a ram, regular shape of a carrot, acidity of an oil, aroma of a coffee...

The assessment of certain criteria (content of essential elements, acidity...) requires laboratory tests. Others are determined by simple sensory appreciations.

In this second case, a measuring device can be set up in 3 steps:

Identifying the quality categories

Collecting the data

Processing the data

## 1.1- Definition of the quality categories

Each category is defined by several criteria.

*Ex. In the context of fruit classification, 3 criteria can define the categories: size (large, medium and small), shape (regular or irregular) and the presence or absence of irregularities, such as insect bites linked to attacks (absence/presence).*

Depending on the type of product, it is necessary to define in advance:

- ➔ the criteria,
- ➔ any rules to be applied when classifying.

*Ex. Ranking of criteria (absence of spots > to regularity of shape...); determination of discriminating criteria (regardless of size, a damaged fruit is classified in the lowest category...), etc.*

Once the criteria have been identified and potential rules established, a table of categories is drawn up.

### Examples of product categories

| Productions                                                                                  | Categories                | Criteria           | Criteria     | Criteria |
|----------------------------------------------------------------------------------------------|---------------------------|--------------------|--------------|----------|
| Fruit crops<br>(apples, pears,<br>peaches)<br>Morocco                                        |                           | Size               | Shape        | Spots*   |
|                                                                                              | 1 <sup>st</sup> choice    | Big                | Regular      | -/-      |
|                                                                                              | 2 <sup>nd</sup> choice    | Medium             | Regular      | +/-      |
|                                                                                              | 3 <sup>rd</sup> choice    | Small              | Irregular    | +/+      |
| <i>*A spotted fruit is automatically downgraded to category 3 whatever its size or shape</i> |                           |                    |              |          |
| Breeding farms<br>(rams)<br>Morocco                                                          |                           | Anomaly            | Conformation | ADWG     |
|                                                                                              | Super                     | nothing            | +++          | +++      |
|                                                                                              | 1 <sup>st</sup> choice    | nothing            | ++           | ++       |
|                                                                                              | 2 <sup>nd</sup> choice... | +/-                | +            | +        |
| Green vanilla<br>Madagascar                                                                  |                           | Stages of maturity |              |          |
|                                                                                              | Mature                    | +                  | +            | +        |
|                                                                                              | Queue de serin            | ++                 | ++           | ++       |
|                                                                                              | Split                     | +++                | +++          | +++      |

It is advised to select a limited number of categories to facilitate subsequent measurements.

## 1.2- Data collection

As well as for quantitative results, qualitative data are collected at the level of a representative sample of production (at least 10% for representativeness, 5% for larger productions).

### Collection steps:

- ▶ **Step 1: Identifying the appropriate periods** for quality measurement.



The assessment usually takes place at the end of the cycle, when the production is mature and ready to be marketed.

However, it can be done during the cycle (with a view to providing technical responses during activities) to enable the correction of a weakness before it has a definite impact on the quality of the product. This is also the case for products gradually harvested (Ex. “red berries” for coffee or “green, black, white and red” for pepper).

- ▶ **Step 2: Taking a significant sample of the production.**

The sample must be randomly selected and may include:

- » a number of plants, heads or m<sup>2</sup> for which the entire production will be collected,
- » a proportion of the total produced volume (Ex. number of crates, number of evaluated animals...).

- ▶ **Step 3: Sorting the sample** by category according to the different established criteria.

- ▶ **Step 4: Weighing or counting** the products for each quality category.

*Ex. 10 kg of 1<sup>st</sup> choice apples, 20 kg of 2<sup>nd</sup> choice and 30 kg of 3<sup>rd</sup> choice; zero super ram, 2 first class rams, 3 second class rams...*

In the case of weighing, favor the use of scales adapted to the scales of weight to be weighed to avoid inaccuracies: no more than a factor of 10 between the weight to be weighed and the capacity of the scale (Ex. scale of 100 kg maximum to weigh 10kg minimum).



▶ **Step 5: Calculating the total quantity** of the sample: sum of the quantities of the different categories.

▶ **Step 6: Saving the data.**

- » Sample's reference: date of measurement, location, VSE
- » Quantity by category and total quantity
- » Technical information of interest (practices, production conditions, etc.)

#### Example of a record sheet, Morocco

| Date     | VSE      | Product | Total collected | Quality 1 (kg) | Quality 2 (kg) | Quality 3 (kg) | Obs. |
|----------|----------|---------|-----------------|----------------|----------------|----------------|------|
| 13/04/14 | Abdellah | apple   | 1,000           | 500            | 300            | 200            |      |
| 15/04/14 | Aziz     | apple   | 700             | 250            | 250            | 200            |      |

### 1.3- Data processing

Quality is assessed by calculating the percentage by category: (kg per category/ sample total kg) x 100.

*Ex. (500 kg classified in quality 1/1,000 kg of total production) x 100 = 50% 1<sup>st</sup> choice apples.*

Depending on the objective, the proportion of each category can be calculated:

- » individually, to inform each VSE about the technical performance of its production;
- » on average per product for a group of VSEs, for a quality reference framework per product and per period. This repository will then be used to position the production of each VSE in relation to the average, or to define general guidelines for an overall improvement in the quality of the group's production.

#### Example of reference framework by product, Morocco

| Date      | Products     | Number of VSEs of the sample | Total quantity (kg) | 1 <sup>st</sup> choice (kg) | 2 <sup>nd</sup> choice (kg) | 3 <sup>rd</sup> choice (kg) |
|-----------|--------------|------------------------------|---------------------|-----------------------------|-----------------------------|-----------------------------|
| Year 2014 | Golden apple | 10                           | 1,000               | 59                          | 32                          | 9                           |
| Year 2014 | Quince       | 10                           | 300                 | 70                          | 25                          | 5                           |
| Year 2014 | Peach        | 10                           | 500                 | 48                          | 35                          | 17                          |

## 2- The implementation of specifications and technical quality measurement devices

Depending on the nature of the production and its destination, different technical criteria can be taken into account in relation to the practices implemented by the VSEs: use of synthetic chemicals, compliance with storage conditions, etc.

The assessment of these criteria is generally based on specifications. In the case where label and certification bodies exist locally, and the VSEs wish to engage in a certification process, the adviser works to ensure that the specifications are properly understood in order to bring the VSEs into compliance and to benefit from the certification service.

In the event that these specifications do not exist, and that the VSEs are concerned with integrating a quality approach, a measurement system can be set up by following 3 steps:



### 2.1- The identification of production standards

Most often, this identification consists in accurately describing the technical itineraries that the VSEs must respect:

- » respect for densities, fertilization practices (types of authorized products, dosage, frequency, etc.), crops associations or successions (maintenance of biodiversity, etc.), phytosanitary protection practices (authorized or non-authorized recourse to chemical inputs, dosage, frequency), etc. for plant production;
- » housing (types of materials to favor), feeding and watering practices, sanitary management of livestock... for animal production;
- » hygiene of buildings and equipment, compliance with the «step forward»... for processed products.

Beyond production standards, specifications can include commitments by VSEs in terms of:

- » environmental protection, waste management, use of recyclable or biodegradable materials,
- » compliance with ethical values: solidarity, transparency, fair price,
- » social responsibility: traceability...

## Example of standards set up by a group of VSEs, Tunisia



### AGROECOLOGICAL PRODUCT REFERENCE SHEETS *Practices to be observed and required quality*

#### GENERAL INFORMATION

**Product name:** Carrot

**Variety:** Nantaise améliorée

#### REQUIRED QUALITY

**Size:** medium

**Visual aspect:** spotless, without splits, regular shape and bright orange color  
**Cleanliness:** washed vegetable (clean, no dirt)

**Other:** sold fresh with their tops looking good (freshness)

#### PRACTICES TO BE OBSERVED IN THE CONDUCT OF THEIR CULTIVATION

- Cultivation location in a **hedged plot**
- Compliance with the rules of crop succession:** rotation over 5 years with previous liliaceae, artichoke, cauliflower, potato or cereal
- Contribution of quality organic fertilizer** (recycled manure or compost): 2kg/m<sup>2</sup> brought in two steps: at least 1 to 2 weeks before seedling as basal fertilizing (1kg/m<sup>2</sup>) and as maintenance fertilizing (1kg/m<sup>2</sup>)
- Ridged crops**
- Observance of crop density** (after thinning): 30cm between rows and 5 to 10cm on the row
- Possible associations** with bean, lettuce, onion, salad, leek and radish
- Weeding/hoeing:** when necessary to avoid the plot from getting covered with grass
- Water intake:** irrigation when necessary, furrow irrigation in the morning or in the evening
- Use of natural treatments as a first resort:** ginger, chili against white flies; treatments stop at least 15 days before harvest
- Harvesting and storing techniques:** harvesting with tops for fresh sales; in case of storage, cut the tops and store without washing in a ventilated place

## 2.2- Monitoring standard compliance

Compliance with specifications is continuously monitored for all production cycles.


### The monitoring steps:

- ▶ **Step 1: Identifying the favorable periods** for monitoring of each standard.
- ▶ **Step 2: Undertaking visits** (planned or unannounced) to the VSEs.
- ▶ **Step 3: Recording the data.**
  - » Date, concerned VSE, monitored production
  - » Checked standard
  - » Description of the implementation of the practice by the VSE
  - » Pointing out potential observations
- ▶ **Step 4: At the end of the cycle or season, checking whether the specifications have been observed or not.** Depending on the discriminative commitments, the production may be downgraded.



Sorting and quality check of organic pepper, Sao Tomé e Principe

## Specifications, production of organic pepper, Sao Tomé e Príncipe

|                                                                                   |                                               |                                                           |
|-----------------------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------------------|
|  | <b>PRODUCT DATA SHEET</b>                     | CREATION DATE:<br>16/12/08<br>UPDATING DATE:<br>09/02/15  |
|                                                                                   | <b>ORGANIC WHITE PEPPER<br/>FROM SAO TOME</b> | Page 1/2<br>DS-White<br>pepper SAO<br>TOME BIO-<br>V2 BIO |

### \* **PRODUCT DESCRIPTION**

Name: **ORGANIC WHITE PEPPER FROM SAO TOME**

Botanical name: *Piper nigrum*

Origin: Sao Tomé

State: grains, milled

**Product of organic farming, FR-BIO-01 certified**

★ **GMO:** not applicable

★ **IONISATION:** none

★ **ALLERGENS:**

- **Intentional presence:** NO
- **Cross-contamination:** NO

★ **PHYSICO-CHEMICAL CHARACTERISTICS:**

**Mold, insects:** product free of living insects, mold and nearly free of dead insects, fragments of insects and contamination by rodents as visible to the naked eye.

|                             | Organic white pepper in grains | Organic milled white pepper |
|-----------------------------|--------------------------------|-----------------------------|
| Foreign matter, % (m/m) max |                                | 2                           |
| Humidity, % (m/m) max       |                                | 14                          |
| Piperine, % (m/m) max       |                                | 4                           |

✓ **ASPECT:**

The color of the white pepper in grains ranges from matt brownish grey to pale ivory white.

The milled white pepper is a powder, the color of which ranges from cream to greyish, with the presence of small gray chunks (inherent within the product).

✓ **GRAIN SIZE:**

|            | Sao Tomé organic pepper in grains | Sao Tomé organic milled pepper |
|------------|-----------------------------------|--------------------------------|
| Grain size | Berries of 3 to 5mm               | 90% < 450µm*                   |

\*: customer specific grain size.

✓ **ODOR AND FLAVOUR:**

Cultivation of this pepper on the island of Sao Tomé gives it very particular characteristics.

★ **MICROBIOLOGICAL CHARACTERISTICS:**

Available on appended sheet upon request.

✓ **Heat treatment** carried out upon customer's request, please contact us.

### \* **PACKAGING**

| Shape                                   | Product code | Unit weight | Sale packaging               |
|-----------------------------------------|--------------|-------------|------------------------------|
| Sao Tomé organic white pepper in grains | 620410       | 20kg*       | Polyethylene-lined kraft bag |
| Sao Tomé organic milled white pepper    | 622620       |             |                              |

\*: Weight of the unit as requested by the customer. Usual packaging in bags of 25kg

### \* **PRODUCT LABELING**

Printed on each bag: product name, storage conditions, list of ingredients (if applicable), directions for use (if applicable), net weight, batch number to ensure product traceability, product reference, packer's code, shelf life, "product of organic farming" indication.

### \* **STORAGE CONDITIONS**

Store in a place that is dry, temperate, out of direct light, properly ventilated in dry period, free of unpleasant odors and protected against entry of insects and pests.

### \* **USE-BY DATE**

|                    |
|--------------------|
| <b>USE-BY DATE</b> |
| 36 months          |

**Note:**

The information contained in this data sheet is given in good faith, based on our current knowledge, and according to the indications provided by the producer or the supplier. It is the responsibility of the customer to check product compliance with respect to the use that may be made.

### **TO NOTE**

In case the adviser supports a PO or a group of VSEs in a quality approach, a specific commission within the PO or the group may be created.

This commission is in charge of working with the adviser on setting up the specifications and the monitoring of their compliance. It helps ensure knowledge transfer to reach a sustainable control system within the PO or the group.

### 2.3- Data processing

At the individual level, there are only two possibilities:

- » the VSE complies with the specifications: its production is upgraded,
- » the VSE does not comply with the specifications: its production is downgraded.

According to the verification system, the rule of all or part of the commitments may apply.

At the collective level, it might be interesting to calculate the share of VSEs that meet the quality criteria defined in the specifications:

Share of VSEs meeting the specifications = (number of VSEs with upgraded production/ total number of VSEs) x 100



Promotion of agroecology-grown vegetables, Cambodia

### Advantages and disadvantages

- 👉 Simple classification systems can be set up, in a participative way with the VSEs.
- 👉 Quality measures can be combined with the quantity measures.
- 🗨️ Some qualitative criteria cannot be assessed in the contexts where analytical laboratories do not exist.

#### KEY POINTS TO REMEMBER

The adviser must be able to help the farmers in a quality approach, whether to meet market demand or to maintain their results over time (implementation of practices ensuring preservation of productive natural resources).

This quality approach is all the more important as consumers are now willing to consume healthy products and are mindful of the environmental or social aspects of the production.

#### TO GO FURTHER

- Sheet “Technical results - Focus on return calculation”
- Sheet “Economic results - Focus on margin or operating income calculation”
- Sheet “The Techno-Economic Monitoring (TEM) process”
- Sheets “Monitoring the environment” and “Advising”

## Assessing the results

A **VSE's margin** or **operating income** (income - expenses) allows to assess the gains or losses generated by a production activity.

Within the framework of the management advising, establishing the margin or the operating income at regular intervals enables to measure the performance (or counter-performance) of the VSEs to suggest guidelines to improve or maintain the results over time.

### Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

### Goals:

- » Identifying a scale of analysis
- » Implementing a data recording and collection system
- » Calculating margins or operating incomes which will be analyzed afterwards in the course of the advising

### Conditions for implementation:

- » Mastering the basic concepts of agroecology (cf. *Glossary*)

## Economic Results

### Focus on margin or operating income calculation

### Principle

Calculation of the margin or the income compiles the economic data, related to the expenses and income, deriving from the monitoring of the activity at a defined scale (cycle, sub-unit, VSE).

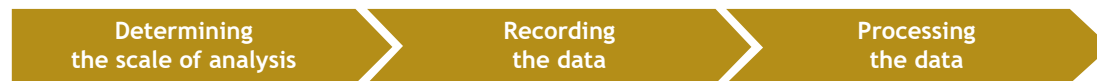
This calculation is carried out for a period (cycle, season, year).

Within the framework of an advising session, the adviser and the VSE calculate the margins or the operating income together, then analyze them considering:

- ➔ all the elements that could affect the margins or the income: nature of the expenses and income, costs and selling price, implemented practices, environment's conditions,
- ➔ the technical indicators: yields, production quality, sustainability of the results notably due to a good management of the natural resources,
- ➔ the farmers' strategies: improvement of income, social prestige, risk management, etc.

### Method

To calculate a margin or an income at regular intervals, it is necessary to implement a measuring process following 3 steps:



Producers and adviser performing margin calculations, Senegal

## 1- The scale of analysis

The choice of the analysis level depends on:

- ▶ the specific interest for a production or a sub-unit,
- ▶ the will to monitor all the VSEs' activities.

### TO NOTE

By monitoring all the cycles of a sub-unit, the results can be recomposed for the sub-unit. By monitoring all the cycles or sub-units of a VSE, the VSE's results can be put back together.

On the contrary, carrying out the analysis at the scale of the VSE and reconstructing the results afterwards for each sub-unit or each cycle is more complex because of the difficulty to separate the data.

The data to be recorded and collected are specific to the chosen level of analysis, the production and the selected period.

They concern:

- ▶ the information characteristic of the cycle, the sub-unit or the VSE: VSE's name and location, production type, number of farming units concerned (cultivated surface area, livestock farming size...), dates of start and end of the monitoring period.
- ▶ the information on the production costs and products (cf. Sheet *"The result indicators of the VSEs' activities"*)

## 2- Data recording

The data relating to the expenses and income are recorded by the farmer in a notebook or a record sheet that includes:

- ▶ a table for the stockpiles, filled at the beginning and at the end of a cycle so as to calculate a variation.

Ex. Table of the estimated value of the livestock in US\$:

| Age categories | Start of period |       | End of period |       | Evolution |  |
|----------------|-----------------|-------|---------------|-------|-----------|--|
|                | Quantity        | Value | Quantity      | Value | Value     |  |
| Fattening pigs | 3               | 120   | 1             | 160   | +40       |  |
| Piglets        | 12              | 240   | 10            | 250   | +10       |  |
| Total          |                 | 360   |               | 410   | +50       |  |

- ▶ a table for the investments, used at the end of the period while calculating the depreciation.

Ex. Table of the investments:

| Elements to be amortized | Purchase price | Purchase month | Depreciation period | Last depreciation month | Annual depreciation |
|--------------------------|----------------|----------------|---------------------|-------------------------|---------------------|
| Piggery                  | US\$300        | March 2010     | 4 years             | February 2014           | US\$75              |
| Orchard                  | US\$600        | January 2008   | 15 years            | December 2022           | US\$40              |

- ▶ a table for all the data related to the expenses (including monthly financial costs) and income.

In this table, the values of the products for self-consumption and intra-unit consumption are recorded, as well as the extraordinary income.

Ex. Extract of an expense and income recording notebook at the scale of a farm, Cambodia:

| Date       | Operations                          | Expenses \$ | Income \$ |
|------------|-------------------------------------|-------------|-----------|
| 02/05/2014 | Purchase of 4 piglets for fattening | 100         |           |
| 05/05/2014 | Purchase of seeds                   | 4.30        |           |
| 11/05/2014 | Purchase of manure                  | 7.10        |           |
| 15/05/2014 | Purchase of tree stakes and strings | 32.10       |           |
| 22/05/2014 | Selling of squash (338kg)           |             | 137.3     |
| 25/05/2014 | Self-consumption of tomatoes        |             | 15        |



### 3- Data processing

Data processing is individualized.

- ▶ **Step 1: Classify the data** from the recording notebook in a 2-column table, **the expenses and the income**, then **calculate the totals** for each item and all the expenses and income

Ex. Classification of the records from the recording notebook by item:

| Date       | Operations                          | Expenses \$ | Income \$ |
|------------|-------------------------------------|-------------|-----------|
| 02/05/2014 | Purchase of 4 piglets for fattening | 100         |           |
| 05/05/2014 | Purchase of seeds                   | 4.30        |           |
| 11/05/2014 | Purchase of manure                  | 7.10        |           |
| 15/05/2014 | Purchase of tree stakes and strings | 32.10       |           |
| 22/05/2014 | Selling of squash (338kg)           |             | 137.3     |
| 25/05/2014 | Self-consumption of tomatoes        |             | 15        |

| EXPENSES TOTAL                      | 876 | INCOME                                              | 1,493 |
|-------------------------------------|-----|-----------------------------------------------------|-------|
| <b>Variable expenses</b>            | 586 | <b>Turnover</b>                                     | 1,271 |
| - purchase fattening livestock      | 100 | - sale animals                                      | 256   |
| - purchase seeds                    | 79  | - sale vegetable products                           | 800   |
| - purchase animal food              | 123 | - sale fruits                                       | 215   |
| - purchase fertilizers              | 67  | <b>Other unsold products</b>                        | 212   |
| - purchase crop protection products | 50  | - valorization of self-consumption market gardening | 212   |
| - purchase small equipment          | 32  | <b>Stock and livestock variations</b>               | 10    |
| - veterinary expenses               | 35  |                                                     |       |
| - temporary labor expenses          | 100 |                                                     |       |
| <b>Fixed expenses</b>               | 290 |                                                     |       |
| - depreciation charges              | 115 |                                                     |       |
| - financial expenses                | 175 |                                                     |       |
| Gross result = 907                  |     |                                                     |       |
| Net result = 617                    |     |                                                     |       |

The adviser helps the farmers classify the information and calculate. He operates progressively by giving the information necessary to a good understanding for a gradual transfer of the mastery of the exercise.

#### TO NOTE

##### Intra-unit consumptions:

- » at the scale of the cycles and sub-units, valuations of intra-unit consumptions of raw materials and recoverable materials produced by the VSE (seeds, fodder, manure...) are classified into these items.
- » at the scale of the farm, the value of intra-unit consumptions may not be recorded so as not to interfere with the calculation of the stockpiles' value - intra-unit consumption can derive from the stock or directly from another cycle or sub-unit. Supposedly, there is a balance between intra-unit consumptions and the expenses and income value records.

##### Expenses sharing:

Calculation of a share of an expenditure specifically allocated to a cycle, a sub-unit or a period can be made according to the cycles' size, duration, and specific needs.

Ex. An irrigation expenditure is divided into equal shares between a plot of tomato and a plot of pepper of the same surface area.

Ex. 2/3 of an expenditure in organic manure is allocated to a squash crop, 1/3 to an onion crop of a similar surface area (larger quantity given to squash).

Ex. A fixed expense in labor is allocated in proportion to the number of changeovers and the surface area of two cycles of cassava and peanuts.

##### The example's depreciation calculation:

The VSE invested in a US\$300 piggery amortized over 4 years, that is US\$75 amortized annually for 4 years.

The farm also has an orchard, the setting-up of which cost US\$600 amortized over 15 years, that is US\$40 amortized per year for 15 years.

Thus, the depreciation charge for the year is of US\$115. Once the depreciation period is over, the investment's value is no longer taken into account.

- ▶ **Step 2: Calculate the margin or the result.**

Depending whether the fixed expenses are taken into account or not, calculation of the margin or the result is net or gross.

Variations of the indicators can be calculated.

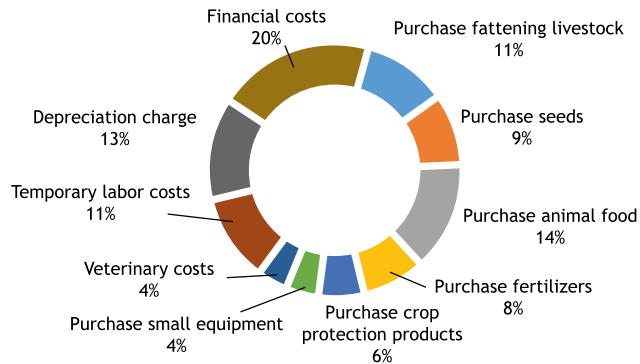
Ex. Monthly result of a VSE.

### ► Step 3: Prepare the analyses.

It can be interesting to show comparative data following the calculations: economic indicators of the reference situation, indicators of a former period, averages of the area's VSEs, secondary data... so as to inform each VSE about its performance.

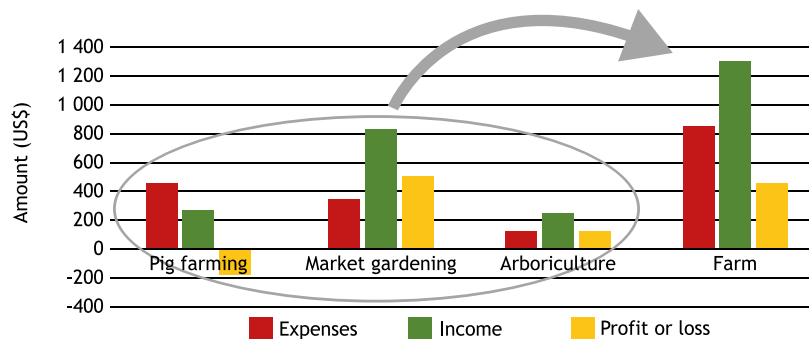
To facilitate the analyses, charts may be produced.

Ex. Analysis chart of the expenses:



While working at the farm scale, it is interesting to keep the detail of the different cycles and sub-units for further analysis.

Ex. Graph showing the results of the farm by sub-unit:



### Advantages and disadvantages

- 👉 Recording can be done by the farmer within a process of management capacity transfer.
- 👉 The expense and revenue items can be adapted to the specificities and the interest of the VSE.
- 👉 Creating graphs facilitates the data analysis afterwards.
- 🗨 The need to wait for the end of a period to process and analyze the data may cause problems of motivation to record the data as they are not used instantly.
- 🗨 The tool, essential in the management of VSEs, is not adapted to cases of illiteracy.
- 🗨 The depreciation calculations can be hard to understand.
- 🗨 Some pieces of information at the scale of the VSE are hard to allocate specifically to a cycle or a sub-unit (arbitration regarding the proportions to consider).

### 📌 KEY POINTS TO REMEMBER

The margin or the operating income enables to get a precise idea of the activities' economic reality. To do so, the adviser must ensure the regularity and exhaustiveness of the recorded information, otherwise there is a risk of distortion of the analyses.

As for the technical indicators, the economic indicators are necessary but not sufficient. It is therefore important to perform cross-analyses and to take the environmental and social aspects into account. For instance, a VSE can perform good margins yet some of its practices damage the soils; maintenance of the results over time is thus in jeopardy.

### 📄 TO GO FURTHER

- Sheet "Technical results - Focus on return calculation"
- Sheet "Economic results - Focus on margin or operating income calculation"
- Sheet "The Techno-Economic Monitoring (TEM) process"
- Sheets "Monitoring the environment" and "advising"



# Assessing the results

The **Techno-Economic Monitoring (TEM)** process combines assessment of the technical results and assessment of the economic results at the scale of the production or sub-unit cycles.

Implemented on the basis of a sample, it enables to carry out a management advising with a group of VSEs.

## Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

## Goals:

- » Monitoring the productions of a sample of VSEs
- » Assessing the results of these productions at the techno-economic level
- » Elaborating summary result sheets which will be analyzed afterwards within the framework of the advising

## Conditions for implementation:

- » Mastering the basic concepts of agroecology (cf. *Glossary*)
- » Mastering database management and analysis

# The Techno-Economic Monitoring (TEM) process

## Principle

The TEM is a process:

- ➔ of regular recording of technical and economic data from a sample of products,
- ➔ of storage and processing of information within a database,
- ➔ of analysis over a given period (cycle, season, year).

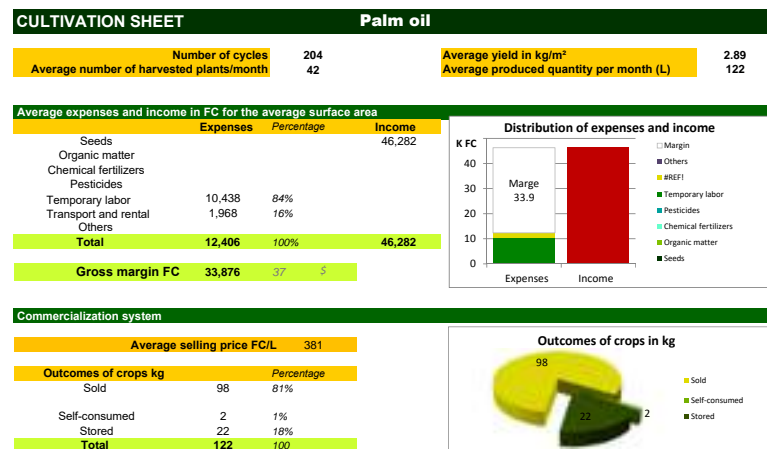
It has the advantage of rapidly processing the technical and economic data to calculate simple or composite indicators, and to compare the results by production, by VSE or by group of VSEs.

## Method

Implementation of a TEM process requires to identify beforehand:

- ➔ the productions that will be monitored at the VSEs' scale,
- ➔ the sample.

Afterwards, there are three successive steps:



Summary sheet, palm oil cultivation, DR Congo

## 1- The preliminary steps

### 1.1- Identification of the productions

The choice of the productions which will be monitored may depend on:

- ➔ their importance in the overall result of the VSEs,
- ➔ the VSE's interest in developing them,
- ➔ the existence of opportunities (profitable sectors, economic niches...).

### 1.2- The sample

Two criteria are decisive in the choice of VSEs: the capacity and the commitment to recording the data on a daily basis.

In situations where the goal is to advise a group of VSEs on the basis of averages, the sample must be representative (10%). As the case may be, the data are used in the form of case studies.

#### TO NOTE

The information's quality takes precedence over quantity: sometimes it is better to work with a limited group of VSEs.

## 2- Identification of the data to be collected

They are of three types:

| Data related to the productions' characteristics                                                                                                                                                                                                                                            | Technical data                                                                                                                                                                                                      | Economic data                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>- VSE's name and location</li><li>- Nature of the cycle or sub-unit (apiculture, market gardening...)</li><li>- Number of production units (cultivated area, number of plants, number of breeding livestock...)</li><li>- Production period</li></ul> | <ul style="list-style-type: none"><li>- Produced quantities</li><li>- Quality of the productions</li></ul> <p>Cf. Sheets "<i>Technical results - Focus on return calculation/ Focus on crop classification</i>"</p> | <ul style="list-style-type: none"><li>- Expenses</li><li>- Income</li><li>- Stock variations</li></ul> <p>Cf. Sheet "<i>Economic results - Focus on margin or operating income calculation</i>"</p> |

Additional information can be collected too, regarding:

- ▶ **the implemented practices:** fertilization (doses, frequency...), maintenance (works, frequency...), livestock feeding (nature, ration...),
- ▶ **the specific events noticed** in the environment: price level at the moment of the sales, floods, pest attacks, seasonal migration of labor...

## 3- Information collection

### 3.1- The collection tool

There is no standard tool. According to the productions monitored and the data searched, a collection table will be set up in the form of sheets or in a notebook.

Temporality of the records differs depending on the productions and this must be taken into account in the elaborated table:



Recording table, DR Congo

- ➔ **per cycle table** for the crops with short or medium cycles and the breeding farms with distinct production cycles (fattening or batch breeding types); the collection of information starts at the beginning of the cycle (seeding, purchase of a fattening animal) and closes at the end of the cycle (sale or consumption of the last products).
- ➔ **monthly or seasonal table** for the productions with continuous production cycles (breeding, laying hens, processing units); the information collection is continuous, new sheets are used at the start of each month or season and closed at the end of each month or season.
- ➔ **annual table** for perennial and semi-perennial crops; the information collection starts at the beginning of the year and closes at the end of the year. When the production is spread over the year, it might be better to draw monthly sheets and compile them at the end of the period to avoid forgetting some information.

### 3.2- Data recording

The recording can be done:

➔ **by the farmers**, who note down the information in real time.

In this case, at the beginning the adviser helps each farmer fill in the first information, then regularly checks on them to ensure the data's reliability.

Upon closing of the period (cycle, season...), the adviser helps the farmers identify additional information to be taken into account.

➔ **by the adviser**, during interviews carried out at the VSE's level.

In this case, at each visit, the adviser identifies the various operations which have taken place during the period and notes down the information of interest. During the discussion, he asks questions about the technical routes and asks for precisions.

The visits must take place:

- » every 15 days for short cycles or crops requiring numerous interventions (ex. Rabbit breeding),
- » every month for long cycles requiring a few interventions (ex. Cassava cultivation).



Recording sheet explanation, palm oil unit, DR Congo

### **i** ILLUSTRATION – LIVESTOCK FARMING RECORDING SHEET/ DR CONGO

Model of techno-economic data collection sheet for livestock farming

#### Techno-economic data collection sheet for livestock farming

##### 1. General Information:

|                         |  |                      |  |
|-------------------------|--|----------------------|--|
| Farmer's name:          |  | Date of visit:       |  |
| Territory:              |  | Agricultural center: |  |
| Village of membership:  |  | Technician:          |  |
| Livestock farming type: |  |                      |  |

##### 2. Livestock count:

|                         | Start of cycle |       | End of cycle |       |
|-------------------------|----------------|-------|--------------|-------|
|                         | Number         | Value | Number       | Value |
| Nb adult males          |                |       |              |       |
| Nb young males          |                |       |              |       |
| Nb pups                 |                |       |              |       |
| Nb adult females        |                |       |              |       |
| Nb young females        |                |       |              |       |
| <b>Total livestock:</b> |                |       |              |       |

##### 3. Livestock farming expenses:

| Fodder and supplements |      |          |      |              |            |
|------------------------|------|----------|------|--------------|------------|
| Date of purchase       | Type | Quantity | Unit | Unit cost    | Total cost |
|                        |      |          |      |              |            |
|                        |      |          |      |              |            |
|                        |      |          |      |              |            |
|                        |      |          |      |              |            |
|                        |      |          |      | <b>Total</b> |            |

| Interventions and veterinary products |      |          |      |              |            |
|---------------------------------------|------|----------|------|--------------|------------|
| Date of purchase                      | Type | Quantity | Unit | Unit cost    | Total cost |
|                                       |      |          |      |              |            |
|                                       |      |          |      |              |            |
|                                       |      |          |      |              |            |
|                                       |      |          |      | <b>Total</b> |            |

| Temporary labor  |      |          |      |           |            |
|------------------|------|----------|------|-----------|------------|
| Date of purchase | Type | Quantity | Unit | Unit cost | Total cost |
|                  |      |          |      |           |            |

##### 4. Income:

| Sold production |      |          |      |              |            |
|-----------------|------|----------|------|--------------|------------|
| Date            | Type | Quantity | Unit | Unit cost    | Total cost |
|                 |      |          |      |              |            |
|                 |      |          |      |              |            |
|                 |      |          |      |              |            |
|                 |      |          |      | <b>Total</b> |            |

| Self-consumed production |      |          |      |              |            |
|--------------------------|------|----------|------|--------------|------------|
| Date                     | Type | Quantity | Unit | Unit cost    | Total cost |
|                          |      |          |      |              |            |
|                          |      |          |      |              |            |
|                          |      |          |      |              |            |
|                          |      |          |      | <b>Total</b> |            |

### 3.3- The recording stages

Three main recording stages are implemented for an exhaustive collection of information:

| 1. Collection of initial elements                                                                                                                                     |                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Characteristic elements                                                                                                                                               | Initial specific tables                                                                                                          |
| <ul style="list-style-type: none"> <li>- The VSE and its location</li> <li>- Characteristics of the production</li> <li>- Starting date of cycle or period</li> </ul> | <ul style="list-style-type: none"> <li>- Stock initial value</li> <li>- Previous investments</li> <li>- Ongoing loans</li> </ul> |



| 2. Collection of elements in the course of the cycle or the period                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Variable expenses                                                                                                                                                                                                                                                                                                                                                                                                                    | Income                                                                                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>- Nature, amount of production variable expenses</li> <li>- Nature, quantity and value of intra-unit consumptions</li> </ul> <hr/> <ul style="list-style-type: none"> <li>+ Updating of the investment table upon each new investment related to the monitored productions</li> <li>+ Updating of the financial cost table upon each new loan related to the monitored productions</li> </ul> | <ul style="list-style-type: none"> <li>- Nature, quantity, quality classification and sales revenues</li> <li>- Nature, quantity and value of self-consumptions</li> <li>- Nature, quantity and value of intra-unit consumed products</li> </ul> |
| <ul style="list-style-type: none"> <li>+ Particular events in the course of the cycle or the period</li> <li>+ Specific practices</li> </ul>                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                  |



| 3. Addition of complementary elements at the end of a cycle or period   |
|-------------------------------------------------------------------------|
| <hr/> <p>Stock final value</p> <hr/> <p>End date of cycle or period</p> |

### 4- Data processing

It consists in classifying the collected data to obtain a summary sheet regrouping the useful, analyzable information for the monitored period.

This sheet is composed of:

- ▶ a table regrouping the characteristics and technical results,
- ▶ a margin calculation table,
- ▶ techno-economic indicators of interest determined as required (ex. margins or expenses or income /m<sup>2</sup> or /m<sup>2</sup> and /day...) and represented in a graph form to facilitate the analyses.

Processing can be carried out:

- for each VSE from the sample.

*Ex. summary sheet of the carrot, tomato and cucumber cycles from Mr Phoutong's market gardening activity during the 2014-2015 dry season.*

- for a group of productions by calculating the averages, minima and maxima by production nature.



Support to VSEs in calculations, Cambodia

Therefore, it is necessary to fill in the number of concerned cycles or sub-units with the average values contained in the sheet.

*Ex. Sheet of average results of the carrot producers in Viengkham for the 2014-2015 dry season.*

**TO NOTE**

In case of an important number of monitored VSEs and productions, the data must be captured in a database and processed thanks to automatic tables.



Capture of information in a database, Senegal

**i ILLUSTRATION – CULTIVATION SHEET BASED ON AN AVERAGE OF THE RESULTS OF PEANUT CYCLES, 2013-2014 RAINY SEASON/ DR CONGO**

| CULTIVATION SHEET                                                     |                         | Peanuts                            |                        | 2013-2014 A |  |
|-----------------------------------------------------------------------|-------------------------|------------------------------------|------------------------|-------------|--|
| <b>Average technical data</b>                                         |                         |                                    |                        |             |  |
| Number of cycles                                                      | 7                       | Cycle average duration in days     | 101                    |             |  |
| Average area in m <sup>2</sup>                                        | 1,743                   | Average produced quantity in kg    | 97                     |             |  |
| Total area in m <sup>2</sup>                                          | 12,200                  | Average yield in kg/m <sup>2</sup> | 0.07                   |             |  |
| <b>Average expenses and income in FC for the average surface area</b> |                         |                                    |                        |             |  |
| <b>Expenses</b>                                                       |                         |                                    | <b>Income</b>          |             |  |
| Seeds                                                                 | 39,488                  | 12,089                             | Turnover               |             |  |
| Organic matter                                                        |                         | 10,551                             | Self-consumption       |             |  |
| Pesticides                                                            |                         | 49,098                             | Stock variation        |             |  |
| Temporary labor                                                       | 22,086                  |                                    |                        |             |  |
| Other expenses                                                        |                         |                                    |                        |             |  |
| <b>Total</b>                                                          | <b>61,574</b>           | <b>71,739</b>                      |                        |             |  |
| <b>Gross margin</b>                                                   | <b>10,165 Fc</b>        |                                    |                        |             |  |
| Margin/m <sup>2</sup>                                                 | 5.8/m <sup>2</sup>      |                                    |                        |             |  |
| Margin/m <sup>2</sup> /d                                              | 0.058/m <sup>2</sup> /d |                                    |                        |             |  |
| <b>Distribution of expenses and income</b>                            |                         |                                    |                        |             |  |
|                                                                       |                         |                                    |                        |             |  |
| <b>Product destination</b>                                            |                         |                                    |                        |             |  |
| Average selling price FC/kg                                           | 742                     |                                    |                        |             |  |
| <b>Product destination (kg)</b>                                       |                         |                                    |                        |             |  |
|                                                                       | <b>Sold</b>             | 16                                 | 17%                    |             |  |
|                                                                       | <b>Self-consumed</b>    | 14                                 | 15%                    |             |  |
|                                                                       | <b>Stored</b>           | 66                                 | 68%                    |             |  |
| <b>Total</b>                                                          | <b>97</b>               | <b>100</b>                         |                        |             |  |
| <b>Outcomes of crops in kg</b>                                        |                         |                                    |                        |             |  |
|                                                                       |                         |                                    |                        |             |  |
| <b>Comments</b>                                                       |                         |                                    | <b>Recommendations</b> |             |  |

## Advantages and disadvantages

- ☞ The Techno-Economic Monitoring (TEM) process combines the measures of the technical and economic results and enables crossed analyses.
- ☞ The recording tools can be adapted according to the VSEs' capacity and the information completed by the adviser.
- ☞ By monitoring all the production cycles of a sub-unit and all sub-units, it is possible to reconstruct the VSE's result.
- ☞ The process might be hard to implement and costly in terms of human resources if the farmers are not involved in the recording.
- ☞ Time between data recording and data processing can be long and might dissuade the farmers from filling in the tables (incomplete information).
- ☞ Implementation of a TEM process is complicated and requires good skills in database management.

### KEY POINTS TO REMEMBER

As part of the management advising, the TEM is an interesting process: it enables to assess the technical and economic results from a sample and then to use the data for all the VSEs.

The quality of the analyses depends on a good handling of the TEM's recording tools (quality and completeness of the information). It is thus important to regularly help the farmers fill in the tables.

### TO GO FURTHER

- Sheet "Technical results - Focus on return calculation"
- Sheet "Technical results - Focus on crop classification"
- Sheet "Economic results - Focus on margin or operating income calculation"
- Sheets "Monitoring the environment" and "Advising"



Peanut harvest, DR Congo



# Monitoring the environment

The management advising is based on the VSEs' results and the monitoring of the environment's evolutions.

On the environmental plan, **the monitoring of the natural resources** enables farmers to have useful information for decision-making: state of soils, water availability, sanitary pressure, evolution of the landscape and of biodiversity...

This information is generally analyzed in order to ensure maintenance of productive natural resources and therefore sustainability of the activities developed by the VSE.

## Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

## Goals:

- » Identifying the indicators
- » Implementing monitoring protocols
- » Having environmental indicators that will be analyzed afterwards within the framework of the advising

## Conditions for implementation:

- » Characterizing the environment and having an initial state of the natural resources beforehand
- » Mastering the technical and scientific aspects specific to the running of the targeted natural resources

# Natural environment

## Focus on the monitoring of natural resources

### Principle

The agricultural activities mobilize natural resources: water, soil, biodiversity. If these activities are not reasoned, they can constitute a threat for these resources and consequently for themselves.

As part of the management advising, the adviser interprets the changes in the natural resources with the farmers so as to ensure maintenance of the environment's productive potential. These interpretations lead to the identification of practices that enable to limit the negative effects and to maximize the positive effects of the agricultural activities on the resources.

### Method

The implementation of a mechanism for monitoring of natural resources requires specific skills. If they are not available internally, they can be sought from partnerships or service provision.

In any case, the adviser must:

- ➔ be able to manage the monitoring work (knowing the key indicators, identifying the structures to associate, understanding the protocols),
- ➔ make the information accessible to the VSE (interpretation of the indicators).



Collection of soil samples, Madagascar

## 1- The key indicators

### 1.1- The soil

Monitoring of the soil's changes can relate to several elements:

- ➔ **the texture**, that is the constitutive elements that characterize the soil (clays, sands, humus, silt, gravel, stones...).

The agricultural practices have little effect on the texture except when removing stones or when large amounts of amendments are brought (ex. addition of sand on a clay soil).

- ➔ **the structure**, that is the layout of various elements that give the soil its loosened or compact character, its permeability...

Various agricultural practices have an impact on the soil's structure and its stability: the works on the soil (ploughing, loosening), the crop associations and successions, the addition of amendments...

- ➔ **the present mineral and organic elements**, that provide useful nutrients to the plants and contribute to the soil's physical qualities.

Formation of the clay-humic complex is essential to the soil's capacity to retain water (useful reserve) and mineral elements, and to make them available for the crops (cation exchange capacity).

As they grow, the crops draw mineral elements from the soil. The fertilization practices (organic, mineral) compensate or not for the crops' drawings.

- ➔ **the present micro and macro living elements**, that make of the soil a living whole, able to change (recycling of organic matter, soil's biological aeration, nitrogen or carbon fixation...).

The practices of soil working, covering or not, resorting to crop or animal protection products, burn farming... either disrupt or foster soil life.



Soil sample

### 1.2- Water

Monitoring of the changes in the water resource generally relates to two main elements:

- ➔ **the quantity of water available**, depending on the type of sources (rivers, ponds, rains...) and the refill mechanisms. The water quantity can vary naturally in the course of the seasons.

Drawings for irrigation or livestock watering (dewatering modes, distribution types and irrigation practices), water storage practices, the soil cover favoring or not its infiltration... have an impact on the quantity of water available.

- ➔ **the quality of water**, depending on the elements that are dissolved (chemical molecules) or suspended in water (organic molecules) and the present living organisms (pathogens).

The agricultural activities have an impact on quality through the production of livestock manure, in cases of soil erosion (water loaded with particles), or in fertilization practices (type of inputs, quantity of used fertilizers) or sanitary treatments (type, used quantities).



Temporary stream, Morocco

#### TO NOTE

Soil and water are not only subject to the pressure of agricultural activities, but also to climate events, that are stronger and stronger nowadays: very intense rainfalls and dryness that have an impact on the soil's quality, erosion, water availability...



### 1.3- Biodiversity

Monitoring of the evolutions may relate to:

- ➔ **the parasite fauna and flora**, that is the presence or not of parasites and pests, invasive species (ex. proliferation of locusts...).
- ➔ **the useful fauna and flora**, that is the auxiliaries and pollinators, the mobilizable biomass (fodder, materials), favorable grove...

The agricultural activities have an impact on biodiversity through the practices of crop protection management (wide-spectrum curative treatments, integrated pest management), the production modes (mono-activity or diversification) and the biomass management (deforestation, planting of hedgerows, grazing practices, mobilization of local materials...).

### 2- Support in the implementation of a monitoring mechanism

A mechanism for monitoring of natural resources is generally implemented following 5 steps.

- ▶ **Step 1: Choice of monitored resources and definition of relevant, measurable indicators.**

*Ex. Monitoring of organic matter rate, monitoring of quantity of worms, monitoring of rainfall, monitoring of spring flow rates...*

- ▶ **Step 2: Determination of the protocols** (nature of the measures, choice of locations, sampling mode and frequency).

*Ex. Yearly measurement of samples of soils collected at the same locations...*

- ▶ **Step 3: Identification of the means necessary to the implementation of the protocols** (mobilization of external services, the VSEs or the adviser, possible purchase of equipment).

*Ex. Setting-up of a rain gauge in a plot of land and measurements are noted down by the producer, mobilization of laboratories...*

- ▶ **Step 4: Validation of the choice of indicators** regarding feasibility to implement the protocol and interpret the results (related with the financial means and time).

*Ex. monitoring of biodiversity as a whole requires too important means for data collection and processing, a focus on the evolution of the forest cover through photo-interpretations is simpler.*

- ▶ **Stage 5: Implementation of the protocols.**

### Examples of protocols for measurement of indicators

|                          |                                                                                                                                                                               |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Soil erosion             | Measurement of soil particles present downhill after each rainfall through implementation of Wischmeier systems (water collection tanks downstream).                          |
| Soil fertility           | Regular measurement of fertility (organic matter, C/N proportion, availability of assimilable cations Na, K, Mg, Ca, etc.) through sample collection and laboratory analyses. |
| Soil biological activity | Regular measurement of soil biodiversity (worms...) with regular counting.                                                                                                    |
| Useful water reserve     | Sampling and physical measurements in laboratory.                                                                                                                             |
| Water quality            | Regular turbidity measurement, elements dissolved and in suspension, microorganisms... in laboratory.                                                                         |
| Water quantity           | Monitoring of flows, groundwater levels, surface runoff, refilling times and pluviometry.                                                                                     |
| Fauna                    | Monitoring of the presence or apparition of pest populations as part of alert systems (ex. locust alerts).                                                                    |
| Agrodiversity            | Regular counting of varieties and species (nature, number).                                                                                                                   |



Soil degradation, Haiti

### INFORMATION AND COMMUNICATION TECHNOLOGY TOOLS

The “**agromet toolbox**” service is a mobile application that collects in real time all the meteorological data on the spot.

These data are transferred to a server that synchronizes them, updates them in real time and stores them. The information is then searchable on the Internet.

**Interest:** availability of the “climate” information that can be used by the VSEs.

These services are implemented by **Orange**.

### 3- Data interpretation

In a context of advising, monitoring of the natural resources allows to adapt the practices to produce in a sustainable way: upkeeping the results, the mobilized natural resources and the environment's general quality.

Examples:

- » *Adaptation of a manuring plan to the soils' characteristics and evolution.*
- » *Adaptation of the addition of amendments and soil works to the evolution of the soil's structure.*
- » *Implementation of a livestock manure treatment system to maintain drinking water quality.*
- » *Implementation of effective, cost-efficient irrigation practices (mulching, bowls cultivation, irrigation hours) so that water is available until the end of the cycles in a period of drought.*
- » *Implementation of pheromone traps against weevils, living hedges and grass strips to encourage settlement of crop auxiliaries.*
- » *Implementation of fodder crops and production of biomass to limit pressure on resources in a dry environment.*



Biomass harvesting, Bali-Indonesia

### 4- Focus on the VSE's environmental impact and the choice of systems and practices to promote

Monitoring of natural resources and analysis of the results enable to characterize the environmental footprint of the activities carried out by the VSEs. In this way, the adviser and the farmers are able to make the most appropriate choices to:

- reduce pressure on soils and preserve their fertility in the long run,
- implement an integrated management of water resources and hedge against a diminution or damage of these resources that are generally shared (productive water and drinking water),
- preserve biodiversity (fauna and flora) in the soils and landscapes to favor natural balances: soil life, crop auxiliaries,
- maintain in the environment the natural products that are useful to the VSE and the population, such as timber, building wood, medicinal plants, wild food plants, etc.
- maintain the ecosystem services necessary to the well-being of the population (supplies, living conditions...).

Besides, the measurement of the environmental footprint and the resulting choices for the VSEs enable to valorize the systems and practices regarding the fight against soil degradation, resilience to climatic changes and contribution to climate change mitigation.

For the VSE, it is a channel for promotion and mobilization of specific support (from the State, financial backers, development NGOs...) that may enable to co-finance investments aiming at maintenance of the natural resources which are often inaccessible (ex. anti-erosion works, drinking water adduction, plots of reforestation or forest regeneration).

#### TO NOTE

With time, the actions led by the VSEs can be assimilated to environmental services provided to the collectivity, some of which could be remunerated (ex. reforestation, integrated water resources management - IWRM, maintenance of fire-breaks).



Sampling using an auger, Madagascar



Soil profile, Haiti

## Advantages and disadvantages

- ☞ Monitoring of the natural resources provides farmers with useful information to adapt their practices.
- ☞ The farming VSEs are sensible to the evolutions of the natural environment and understand the interest of the monitoring mechanism.
- ☞ Relatively simple mechanisms can be implemented in association with the farmers (pest entrapment for counting, rainfall measurement).
- ☞ The monitoring sometimes requires scientific protocols and durations that are not always compatible with the projects' means.
- ☞ In some contexts, there is no competent organization to work with.

### KEY POINTS TO REMEMBER

Monitoring of natural resources is an essential part of the management advising to VSEs: it is impossible to upkeep the farming activities over time without constantly adapting the practices to the changes in the natural environment, and notably the productive resources (soil, water, biodiversity).

The monitoring protocols are not simple and require to be able to work with the competent bodies.

### TO GO FURTHER

Sheets "Assessing the VSEs' results"

Sheets "Economic environment - Focus on the monitoring of markets"

Sheet "Social environment - Focus on the informational monitoring of the socio-professional environment"

Sheets "Advising"



# Monitoring the environment

The management advising is based not only on the VSEs' results, but also on the monitoring of the environment's evolutions.

On the economic plan, the **monitoring of markets** enables farmers to have useful information for decision-making: products' selling prices in real time, evolution of prices over a given period, etc.

## Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

## Goals:

- » Identifying the data useful to the VSEs
- » Implementing an adapted collection mechanism
- » Having economic information to carry out a management advising activity

## Conditions for implementation:

- » Characterizing the economic environment to get to know the available sources of information
- » Mastering the survey methods
- » Having material and human means to operate the mechanism
- » Getting the potentially necessary authorizations

# Economic environment

## Focus on the monitoring of markets Information collection and processing

### Principle

The markets evolve rapidly. Yet, the selling price is a determining variable in the marketing decision and significantly affects the economic results of the activities. Besides the initial characterization of the economic environment, the adviser has to make sure that the farmers have the right information at the right time.

When the "market" information mechanisms exist, the adviser helps the VSEs accessing and analyzing this information.

Otherwise, specific mechanisms of collection, processing and dissemination must be implemented in addition to the mechanisms that assess the VSEs' results.

### Method

The implementation of the market-monitoring mechanism involves three preliminary stages\*:



Data collection, Cambodia



Survey at the market, Cambodia

*\*Interpretation and dissemination of the data are described in the following sheet.*

## 1- Choice of the data to be collected

This choice concerns:

The products

The selling methods

The market places

### 1.1- The products

It is sometimes difficult to be exhaustive (limited resources and working time); thus, it is necessary to determine the products of interest for the VSES according to:

- their importance in the production systems,
- the opportunities or necessity to diversify their productions.  
*Ex. the lettuce from Diourbel is not very present on the markets, it is sold at high prices during the holiday periods.*

While choosing, it is relatively irrelevant to select products:

- whose prices vary little: products harvested all year long, subsidized products or largely-imported products.  
*Ex. the price of local rice in Haiti varies little because it is set on the price of imported rice (which is constant).*
- with a high seasonality and with long periods of absence on the markets.  
*Ex. avocados, the harvesting period of which is relatively narrow.*

#### TO NOTE

A product is defined by identification criteria (variety, origin, size...) that determine its quality and impact its marketing (price).

*Ex. Roma tomato and Caribbean tomato; imported rice and local rice; industrial chicken and farm-reared chicken.*

While choosing the products to follow, the definition of the criteria must enable one to make sure that the recorded prices correspond to homogeneous and comparable products (do not mix up the prices of two varieties of tomatoes sold separately for instance).

### 1.2- The selling modes

The products can be sold:

- **wholesale or semi-wholesale:** selling to a tradesman who will then sell them at retail or to another tradesman; this sale is characterized by important sales units and volumes.

*Ex. bag, box, dozen of bunches, growing plot, truck...*

These sales can take place at the level of the VSEs, product regrouping points, or in specific areas of the markets.

Wholesale enables the VSEs to quickly sell important quantities of products (marketing time gain), but at a cheaper price than in retailing.

- **retail:** sale to the final consumer characterized by small sales unit and small volumes

*Ex. pile, box...*

These sales may take place at the VSE level or at consumer markets.

Retail sale enables the VSEs to sell limited quantities of products (considerable amount of marketing time), but at a higher unit price than in wholesale.

The choice of wholesale or retail depends on the farmers' strategy and the context.

*Ex. Urban and per-urban VSEs focusing on direct retail sale and short channels; rural VSEs focusing on the sale of wholesale food products to urban centers.*



Wholesale packaging, DR Congo



Retail sale, DR Congo

### 1.3- The forums

Various forums exist. However, it is necessary to focus on the VSEs' usual marketing places during the selling periods of products or the places that provide opportunities.

These places can be:

- the VSE,
- production regrouping areas where wholesales are carried out (intended for local, national or international markets),
- small to medium-sized markets (village, borough),
- regional consumer markets,
- national markets in big cities and capitals.



Farmgate sale,  
Senegal



Village regrouping area,  
DR Congo



Matete urban market in  
Kinshasa, DR Congo

The choice of places can also be based on the available means.

Depending on the places, the monitoring system differs in terms of:

- **diversity of the monitored products:** lesser on small-sized markets,
- **diversity of selling modes:** retail on the consumer markets, wholesale in the regrouping areas,
- **monitoring frequency:** some markets are very seasonal, small markets are generally weekly markets while urban markets take place every day,
- **monitoring mode:** price collection on the markets, calculation from the monitoring of the VSEs' results for onsite sales (selling price = turnover/ sold quantities).

### TO NOTE

The most relevant option often consists in working with the local and regional markets that provide complete information (in number of products) and prices which constitute references for the VSEs.

## 2- Data collection

### 2.1- Collection modes

The implementation of a collection mechanism requires to determine:

- ➔ **the collection frequency:** from every week to every month depending on the collection places and products,
- ➔ **the collection method:** the surveys are generally achieved with the tradesmen on the markets thanks to collection sheets established by date and by market. The selling prices and units are recorded according to the selling category: wholesale or retail.

### 2.2- The surveyors' training

The collection of data can be achieved by involving the VSEs or entrusted to third parties: advisers, agriculture or trade technical services, market managers, service providers.

In any case, it is necessary to train these surveyors to make sure that they all comply with the pre-established collection protocols.

The first recordings can be achieved in the form of practical exercises. Afterwards, control visits must be organized. Moreover, it is necessary to regularly check the relevancy of the collected information by comparing it with existing reference prices (records from the previous years...).

In case of failure, reframing must be made to ensure quality and regularity of the information.



Price collection, DR Congo

### 2.3- Launch and organization of collections

Before launching data collection on a market, it is important to inform the competent authorities and to obtain an authorization.

To facilitate the work and good understanding of the process, an information meeting must be organized beforehand to present:

- the goals,
- the information collection and processing method,
- the types of use,
- the transmission modes,
- the introduction of the surveyors and the process manager.

#### TO NOTE

Tradesmen are not always in favor of transparency regarding the information on prices, especially when they are negotiated on the market.

In this case, surveyors must remind them of the process's purpose and give them the price information bulletins. They can also ask the market managers for support.

Price collection is then arranged as follows:

- for each market and each collection, 3 statements are achieved for a same product from 3 different tradesmen;
- the tradesmen are randomly selected but disseminated over the whole market;
- each batch is weighed, and the recorded price for each standard unit is brought back to weight units (price per kilogram, per pound...).

#### TO NOTE

Prices are often expressed in commonly used units: pile, basket... When the volumes of these units remain constant, it is possible to settle for a piece of information price/unit that is easily understandable by the VSEs. However, it is interesting to calibrate these units to convert them into standard units if necessary.

When weighing must be done, preference should be given to scales adapted to the volumes to be weighed (no weighing lower than 1/10<sup>th</sup> of the maximum load weighed by the scale).

Similarly, it is important to ensure coherence between the announced prices and the actual sale prices after negotiation.

### ILLUSTRATION – EXAMPLE OF “PRICE” COLLECTION SHEET

Collection date:

Market:

Surveyor:

| Products     | Batch weight | Batch price | Note |
|--------------|--------------|-------------|------|
| Pineapple    |              |             |      |
|              |              |             |      |
|              |              |             |      |
| Amaranth     |              |             |      |
|              |              |             |      |
|              |              |             |      |
| Red onion    |              |             |      |
|              |              |             |      |
|              |              |             |      |
| White onion  |              |             |      |
|              |              |             |      |
|              |              |             |      |
| Sweet potato |              |             |      |
|              |              |             |      |
|              |              |             |      |
| ...          |              |             |      |

General observation about the market:



### 3- Data processing

Processing is carried out after each survey or after a monitoring period (season, year) depending on the information needs.

To facilitate processing and management of the collected information, it is often better to create a database.

Analysis tables are used to extract the chosen data, to process them and to ease the creation of documents for dissemination.

The processing carried out concerns:

- ▶ **the calculation of average prices** per product and per market for the period.

*Ex. the retail price of the Roma tomato on Lukula's market (DR Congo) on 05/01/15 is of FC500/kg (average of the 3 price surveys carried out on this market at this date).*

- ▶ **the calculation of price trend** evolution per product and per market between the current period and the previous period.

*Ex. the retail price of the Roma tomato on Lukula's market on 05/01/15 is 15% higher compared to the previous fortnight.*



#### INFORMATION AND COMMUNICATION TECHNOLOGY TOOLS

The “**data collection**” service - tested by **Orange** in Mali and in Cameroun - enables to feed a storage, data processing and information dissemination space via mobile devices (smartphones, tablets...).

The service operates simply by sending the collected data via smartphone or tablet. The information is then made available on the Internet.

**Advantage:** market information usable and available for all members of the network.

#### TO NOTE

Access to market information is essential to the VSE. When the mechanisms are created as part of projects, the issue of their perpetuation must be anticipated by involving the VSEs, the professional organizations or the technical services.

### Advantages and disadvantages

- 👉 Implementation of a market monitoring is relatively simple.
- 👉 It is not necessary to monitor a lot of products and markets to obtain usable information.
- 👎 The surveyors must be monitored to ensure reliability of the collected information.
- 👎 Perpetuation of the collection systems is often an issue after a project phase.
- 👎 The tradesmen are not always willing to give transparent information about their prices.

#### KEY POINTS TO REMEMBER

Knowledge of the prices and their evolution on the market is paramount to support farmers in the decision-making.

It is necessary to target the useful information and to implement an adapted system to collect and process this information.

According to the information needs, the processing can be carried out at each survey in order to directly disseminate the usable information. It can also be achieved every season or every year to determine the evolutions.



#### TO GO FURTHER

Sheet “Economic environment - Focus on the monitoring of markets - Information interpretation and dissemination”

Sheet “Natural environment - Focus on the monitoring of natural resources”

Sheet “Social environment - Focus on the informational monitoring of the socio-professional environment”

Sheets “Assessing the VSEs’ results”

Sheets “Advising”



# Monitoring the environment

The information about prices and their evolution depends on whether it is interpreted instantly or a posteriori.

In both cases, it is used within the framework of the management advising and provides support to the farmer in the decision-making.

## Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

## Goals:

- » Making the “market” information useful to decision-making available for the marketing of the products
- » Interpreting the price evolutions during a given period to have information to analyze and plan the future production

## Conditions for implementation:

- » Having reliable information
- » Mastering the calculations of trends and reading of graphs

# Economic environment

## Focus on the monitoring of markets Information interpretation and dissemination

### Principle

Interpretation of the information deriving from the monitoring of the markets can be achieved:

- ➔ after collection (“warm” information) for an immediate use by the VSEs; the goal is to determine the possibility and the conditions to sell the products in the best conditions (selling price, choice of market);
- ➔ after a certain period (“cold” information) to monitor the evolution in prices, see what lessons can be learnt (periods of high prices, opportunities, markets of interest...) and define the strategies regarding production planning.

In both cases, to be useful to the VSEs, the information must be disseminated using adapted channels.

### Method

There are two steps:



“Market” information presentation session, Cambodia

## 1- Interpretation of recent (“warm”) information

It may enable the VSE to:

- ▶ **set its prices during the negotiation** with the tradesman buying on site.  
*Ex. the price of peanut is of 700 gourdes per bag on the wholesale market of Cap Haïtien, that is a possible sale at the VSE’s level of 500 gourdes per bag.*
- ▶ **determine the best selling opportunities** by comparing the prices on the different markets and the costs related to marketing.  
*Ex. the price of yam is of 15.3 gourdes per kg on Limbé’s market and 18.8 gourdes per kg on Cap Haïtien’s market; the marketing costs for Limbé are nil, the costs for Cap Haïtien are of 5 gourdes per kg.  $18.8 - 5 = 13.8$  gourdes/kg, thus it is more interesting to sell on Limbé’s market.*

### Examples of interpretation

| Local market (L) and other distant market (D)                         | Decision                                 |
|-----------------------------------------------------------------------|------------------------------------------|
| L prices + local marketing costs = D prices + distant marketing costs | Local sale preferable (avoids time loss) |
| L prices + local marketing costs > D prices + distant marketing costs | Local sale                               |
| L prices + local marketing costs < D prices + distant marketing costs | Distant sale                             |

- ▶ **to determine whether the trend of the reference market for a given product is favorable** to selling, conservation or processing.  
*Ex. the trend indicates a sharp decline in the price of peanuts whereas the price is already low. Instead of selling, a VSE can store the product waiting for a price increase or transform them into paste as it has a constant price and the product is better valorized (despite the processing costs).*

The variation rate measures the evolution of a datum between two dates compared to its initial value.

Variation rate =  $((\text{final value} - \text{initial value}) / \text{initial value}) \times 100$

- » When the variation rate is positive, the given value increases  
Price upward trend.
- » When the variation rate is negative, the given value decreases  
Price downward trend.
- » When the variation rate is equal to 0, the datum’s value remains the same  
Price steadiness.

*Ex. the price of tomato is of €4.05 on 15/10/13 and of €4.11 on 20/10/13.*

*Variation rate =  $((4.11 - 4.05) / 4.05) \times 100 = 1.48\%$*

*Consequently, between October 15<sup>th</sup> and 20<sup>th</sup>, the price of tomato increased by 1.48%.*

Interpretation of the trend is generally based on a **comparison between the price on the market and the floor price that is admissible** for the VSE (= cost price + admissible minimum gain corresponding to the work provided by the farmer).

### Examples of interpretations

| Price                             | Trends        | Decision-making                                                                                                                                                                                                                                                                                   |
|-----------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Price on the market > floor price | Upward<br>↗   | Sale or possibility to wait to obtain a better margin (yet risky if the trends reverse)<br>⇒ Necessity to know the seasonal evolutions of the price and the potential storage costs (in terms of rentals or losses)                                                                               |
|                                   | Downward<br>↘ | Rapid sale before the price on the market is lower than the floor price<br>Processing possibility to be assessed                                                                                                                                                                                  |
| Price on the market < floor price | Upward<br>↗   | Wait before harvesting, storing or transforming<br>⇒ Necessity to know the seasonal evolutions of the price and the potential storage costs<br>⇒ Necessity to know the processing costs and the evolution of the selling prices of the processed products                                         |
|                                   | Downward<br>↘ | Storage until the price on the market is higher than the floor price and/or processing to contemplate, otherwise selling and loss<br>⇒ Necessity to know the seasonal evolutions of the price, the storage or processing costs, and the evolution of the selling prices of the processed products |

Price and trend notice board, Haiti



Transportation of cassava to the markets, Haiti

### TO NOTE

The market information is useful, but other elements come into play in the farmers' decision-making: immediate need of cash that requires selling a product, etc.

## 2- Interpretation of past information (“cold”)

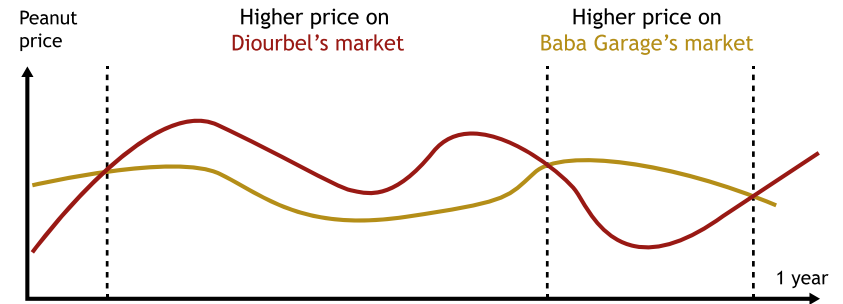
It enables the VSE:

- ▶ to select favorable markets,
- ▶ to identify favorable periods (high price, shortage),
- ▶ to identify diversification opportunities.

To this end, the information is generally processed through graphs.

### 2.1- Selection of favorable markets

From the evolution curves of a same product's price on different markets, the analysis aims at determining the most favorable market(s) in terms of prevailing prices and periods.



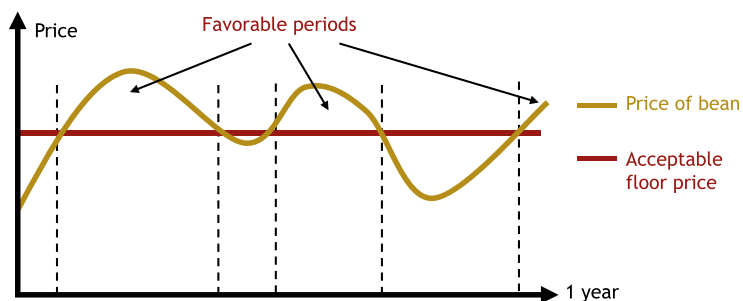
**Graph interpretation:** the upper curve shows the market with the best selling price. When the curves intersect, the prices are equal.

Interpretation of the price on different markets must take the marketing costs into account as they vary from one market to the other (not represented on the above graph).

*Ex. the price of peanut on Diourbel's market in Senegal is generally more attractive than on Baba Garage's market, except at the beginning and end of the year. Taking the commercialization prices into account enables to determine whether it is interesting or not to go to Diourbel to sell the products.*

## 2.2- Identification of the favorable periods

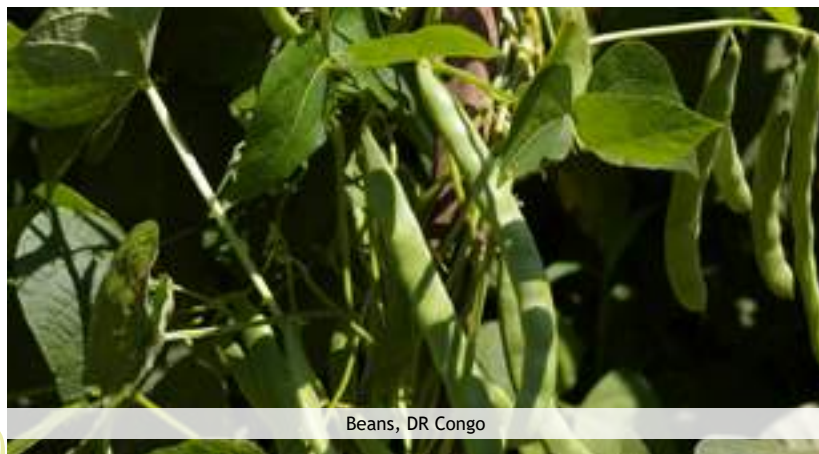
From the curve representing the evolution of the price of a product on a market during a given period, the analysis focuses on the periods when the price is higher than the floor price (cost price + acceptable minimum gain).



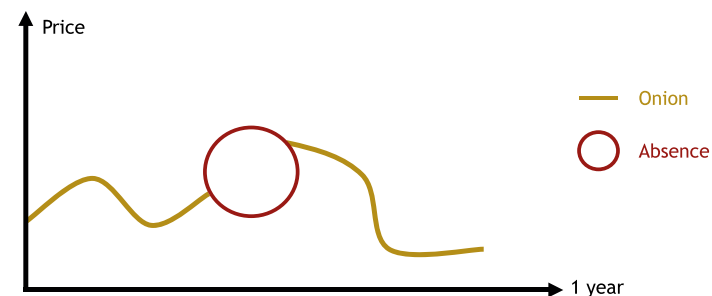
**Interpretation of the graph:** the periods when the prices are most advantageous are situated above the “floor price” straight line.

The interpretation must be completed with the assessment of the VSE’s climate and socio-economic seasonal constraints to determine whether it is possible to set the cycles accordingly.

*Ex. there are 3 periods during the year when the price of the bean is favorable. The seasonal conditions do not allow to postpone the production; however, by storing, a VSE can sell a product during one of the favorable periods.*



From the curve of the evolution of the price of a product on a market for a given period, the analysis also aims at identifying the periods of product deficiency.



**Interpretation of the graph:** the periods when the curve is discontinued correspond to the periods of product absence.

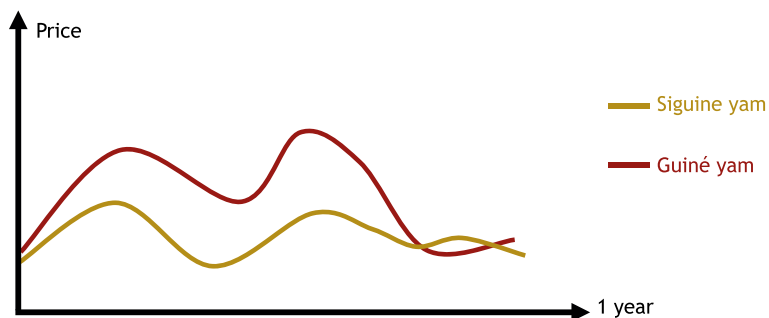
The analysis of the opportunity to produce and sell in a period of product deficiency must consider the technical feasibility (of the production or of storage), the production costs and the consumer demand.

*Ex. onion is absent from Diourbel’s market at the end of the rainy season: it would be interesting to consider the possibility to offer onion on the market during this period by keeping the onion cultivated in dry season or by producing red onion on hill rows to adapt to the conditions of the rainy season.*



### 2.3- Identification of diversification opportunities

From curves representing the evolution of the price of several products on a market for a given period, the analysis focuses on the identification of the products with a high price and on the most advantageous periods.



**Interpretation of the graph:** the highest curves show the highest prices.

The interpretation should be made in association with the assessment of production costs and the quantities produced for a similar number of production units. For each curve, it is possible to draw straight lines that correspond to the “floor price”.

*Ex. the Guiné yam is sold at a better price; its yield is similar to the Siguine yam's, and even though the cost of seeds is slightly higher, this crop (less widespread) represents a diversification opportunity for the VSEs.*

#### TO NOTE

The interpretation of past information is represented here schematically to facilitate understanding.

When disseminating the information to the VSEs, feasibility of the propositions must be checked considering:

- » the technical possibilities of production (counter-season crops, availability of resources, agricultural practices to be implemented...),
- » the conservation and/or processing possibilities,
- » the economic interest of the implementation of new productions (analysis of production costs and margins),
- » availability of the production factors (inputs, labor, cash flow...) at given periods,
- » the marketing costs that differ from one market to another.

### 3- Information dissemination

The choice of dissemination methods depends on the public, the existing operators, the available means and the dissemination costs.

Dissemination can be achieved through:

- paper newsletters handed over to the VSEs or displayed in strategic places (markets, rural crossroads, population meeting points...),
- specific billboards located in the villages, near production sites or markets,
- broadcast communiqués in peak times,
- SMS, upon request (with a cost for the consumer).

#### TO NOTE

In some contexts, dissemination via Internet is possible.

When disseminating the information, it is necessary to:

- clearly specify the period, the products and the markets in question,
- illustrate the documents to ease understanding of information (pictures of the products, trend arrows, graphs...),
- clearly explain the interest and the limits of the information (informational data deriving from the calculation of averages, no statistical representativeness, no will to fix the prices).



Prices and trends bulletin board, DR Congo



## INFORMATION AND COMMUNICATION TECHNOLOGY TOOLS

The **“market price information” service** offers an access - upon request - to information about the prices of the farming products on the markets.

The service operates simply upon sending of an SMS or a voice call via a mobile phone (interactive voice response).

**Interest:** rapid access to market information.

*Ex. the “Larouna Kassouwa” service in Niger offers an access upon request to the farming product and livestock prices on 57 important markets in the country. Access cost: FCFA50/request, FCFA20/min.*

**“My vocal community” service** offers to send vocal messages to all members of a community. A manager centralizes the information and sends vocal messages to the network he is responsible of.

**Interest:** sharing of price information within a network; useful vocal messages in case of illiteracy.

The **“mass SMS” service** offers to send information to several recipients at the same time. It operates via a Web interface which sends SMS.

**Interest:** information easily and quickly disseminated.

The **“virtual marketplace” service** is a mobile trade platform which provides sellers and buyers with a select showcase to publish or consult the offers and/or demands 24 hours a day in order to make the best deals. The service is available from any mobile device with or without Internet connection.

**Interest:** widening of sales and purchasing channels allowing to choose the best opportunities

» Rapid matching of supply with demand

These services are implemented by **Orange**.

## Advantages and disadvantages

- 👉 Recent information enables to take a quick decision: choice of market, harvest or conservation or processing, determination of selling price...
- 👉 Past information enables to spot opportunities regarding destination, products and selling periods.
- 👉 The analysis graphs facilitate understanding of information and comparison between the markets.
- 👉 The ICTs enable an easier and more direct access to information.
- 👉 Past information cannot always be analyzed and requires to be explained by advisors.
- 👉 Supporting the VSEs in their production planning is not restricted to price study.

## KEY POINTS TO REMEMBER

Interpretations of recent or past information are complementary. They should enable to take a decision in marketing periods or to plan the production depending on the market opportunities.

The “market” information is often new for VSEs and not always easy to assimilate. Therefore, it is necessary to regularly help them understand and use this information.

## TO GO FURTHER

- Sheet “Natural environment - Focus on the monitoring of the natural resources”
- Sheet “Social environment - Focus on the informational monitoring of the socio-professional environment”
- Sheets “Assessing the results”
- Sheets “Advising”



# Monitoring the environment

The **informational monitoring** is a practice that is specific to the business world: it consists in keeping regularly abreast of the environment's evolution. It is about obtaining useful information to enable the company to respond quickly to external events.

Within the context of management advising to the VSEs, the informational monitoring practice plays a significant role to track the changes in the socio-professional environment.

## Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

## Goals:

- » Identifying the information channels
- » Obtaining useful information on the VSEs' socio-professional environment
- » Facilitating the integration of the VSEs into networks to receive and transmit the information

## Conditions for implementation:

- » Characterizing the environment and knowing the initial state of the socio-professional environment

# Social environment

## Focus on the informational monitoring of the socio-professional environment

### Principle

As part of the management advising, the informational monitoring of the socio-professional environment aims at collecting relevant information to transmit to the VSEs:

- ➔ information regarding research and innovation, the latest techniques and technologies,
- ➔ administrative, judicial and legal information about the area of business (decrees, local rules, social security...),
- ➔ financial information (subsidies, bank loans...),
- ➔ information about events related to the profession (special events, training, workshops...).

To transmit the informational monitoring practice about their socio-professional environment to farmers, the advisor helps them integrate it progressively into the networks and connect them with the organizations of interest (depending on the VSE's activities).

### TO NOTE

It is not about describing the complex methods of informational monitoring which are inaccessible for the VSEs in the considered contexts, but rather underlining the importance of integrating the networks to benefit from the information useful to the implementation and sustainability of the activities.

### Method

Implementing an informational monitoring requires:

- ➔ to identify the channels of information,
- ➔ to help the VSEs integrate the information on their decision-making process.



## 1- The information channels

Several information channels can be mobilized first according to the desired types of information:

| Ex. information channels               | Research, latest techniques or practices | Administrative, judicial and legal | Financial | Event-related |
|----------------------------------------|------------------------------------------|------------------------------------|-----------|---------------|
| Professional networks                  | +                                        | +                                  | +         | +             |
| Exchange visits, exhibitions and fairs | +                                        |                                    |           |               |
| Professional seminars and meetings     | +                                        | +                                  | +         | +             |
| Technical or administrative services   | +                                        | +                                  | +/-       | +/-           |
| Radio                                  | +/-                                      |                                    |           | +             |
| Magazines                              | +                                        |                                    |           | +             |
| Internet                               | +/-                                      | +                                  |           | +/-           |



Promotion of local honey, Morocco

The advisor helps the VSEs identify the useful channels of information, understand the messages and their interest. The choice of channels depends on accessibility in the different contexts.



Promotion of organic pepper, Sao Tom e Principe



Exchange visits, India

## 2- Information interpretation

The informational monitoring is used as part of the advising to help the VSEs ensure that their activities are quite in conformity or to seize opportunities.

*Examples:*

- » *Support to VSEs in legalizing or formalizing their organization.*
- » *Adaptation of proceeding processes to a new health legislation.*
- » *Achieving land security according to the agricultural land law and its evolutions (cadaster, land registers...).*
- » *Support in the preparation of financing and grant application files.*
- » *Advocacy of food and health safety (promotion of products, valorization of local products...).*
- » *Possibilities of training and reinforcement of VSEs' capacities.*
- » *Recognition of the status of farmer, farm manager...*
- » *Support in the implementation of a social protection for the VSE (health, insurance, guarantee fund...).*



Visit at a farm manager's, Madagascar

## Advantages and disadvantages

- 👉 The informational monitoring on the socio-professional environment is relatively simple to implement.
- 👉 Support opportunities for the implementation of the activities may easily be spotted.
- 🗨️ In some contexts, the information is not always disseminated and requires a research effort.

### KEY POINTS TO REMEMBER

The informational monitoring enables the VSE to seize opportunities related to its socio-professional environment. It requires a good integration into the networks to have a facilitated access to information. Once integrated into the networks, the VSE is proactive: it disseminates information as well.

### TO GO FURTHER

- Sheets “Assessing the VSEs’ results”
- Sheet “Natural environment - Focus on the monitoring of natural resources”
- Sheets “Economic environment - Focus on the monitoring of markets”
- Sheets “Advising”



**Analysis of the VSEs' results** consists in interpreting the indicators set for a given period, as well as the information collected on the environment.

It allows, by comparison, to assess the performances - or counter-performances - and to identify the guidelines to maintain or improve the results.

This analysis is carried out and shared with the VSE at regular intervals.

### Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

### Goals:

- » Interpreting the activities' technical and economic indicators
- » As the case may be, analyzing the evolution of the PO's collective functioning
- » Interpreting the environment's evolutions
- » Setting the goals and targeting actions

### Conditions for implementation:

- » Having the indicators calculated from the collected data
- » Having references (initial situation, former periods, data of other VSEs...)

### Principle

The analysis of the results focuses on:

- ➔ the technical indicators: yields, classification of the production,
- ➔ the economic indicators: expenses, income and margins,
- ➔ the information regarding the changes in the natural, economic and social environment.

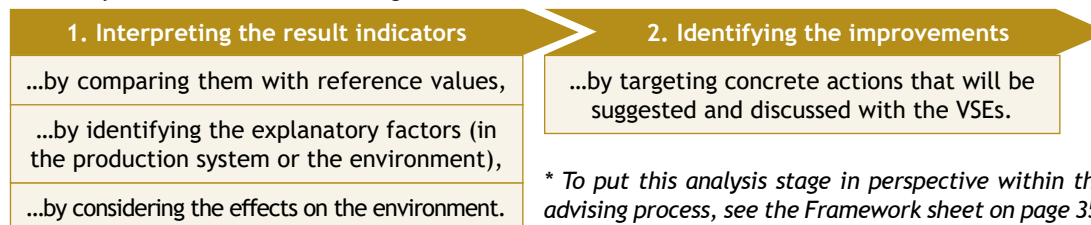
In the case of POs, it also focuses on the collective functioning.

The analysis of the results requires to make comparisons with references: previous situations, set objectives, results of other VSEs, etc.

These analyses are shared with the VSEs to decide on the guidelines (cf. Sheet *"Sharing the analyses with the VSEs"*).

### Method

The analysis\* is achieved in two stages:



\* To put this analysis stage in perspective within the advising process, see the Framework sheet on page 35.



Interpretation of indicators, Morocco

## 1- Interpretation of the indicators

### 1.1- Situating the indicators

The technical (quantitative and qualitative) and economic indicators are compared:

➔ **over time**

*Ex. How has Abdellah's apple yield evolved compared with the past season's yield?*

➔ **in space**

*Ex. What is the position of Abdellah's apple yield in relation to the yields obtained in the area?*

➔ **in relation to the production's potential**

*Ex. Is Abdellah's apple yield close to the area's potential yields considering apple trees cultivation modes?*

➔ **in relation to other crops**

*Ex. Is the apple yield higher or lower than the pear yield?*

#### TO NOTE

In the case of a comparison to other crops of different type and size, it is necessary to use comparable techno-economic ratios: margin/m<sup>2</sup> (or plant), margin/day/m<sup>2</sup> (or plant), monthly margin...



Apple tree orchard, Morocco

### 1.2- Identifying the explanatory factors

The factors that enable to interpret the indicators can be related to:

➔ the elements of the production system, especially the implemented practices

*Ex. the addition of untreated manure with no prior recycling did not enable to obtain the expected yields because of the slowness of its degradation and the high pressure of the weeds.*

➔ the environment's elements

*Ex. the intense heat caused tomato flowers' abortion, which had a negative impact on the yield.*

*Ex. the scarcity of the apples on the markets caused an increase in the prices and consequently an impact on the VSE's turnover.*

### 1.3- Taking sustainability into account

While interpreting the indicators, the advisor must systematically ask himself the following questions:

➔ do the implemented technical routes enable recovering of the mobilized natural resources?

*Cf. Monitoring of the natural resources (water, soil, biodiversity).*

➔ are the trade practices adapted to the markets' demand?

*Cf. Monitoring of the markets.*

➔ are the VSEs integrated in their socio-professional environment?

*Cf. Informational monitoring on the social environment.*

#### TO NOTE

The VSEs' profile and the POs' collective functioning are taken into account while interpreting the indicators, identifying the explanatory factors and questioning the results' sustainability.

*Ex. Failure in a PO's communication may lead to low use of the service offered (decrease in the turnover).*

## 2- Identifying the improvements

Here it is about identifying concrete actions which will be offered and discussed afterwards with the VSEs (cf. Sheet *“Sharing the analyses with the VSEs”*). These actions should bring improvements and ensure sustainability of the results. The following tables show examples of actions to suggest as part of the management advising. For each example, the links between actions to be taken and the environment’s components to consider are illustrated with the following colors:

### 2.1- Actions aiming at improvements

■ Environment
 ■ Social
 ■ Economic

| Results                      | Types of possible interpretations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>In quantitative terms</b> | <ul style="list-style-type: none"> <li>→ Links total produced quantity/ available and mobilized production factors</li> <li>→ Links produced quantity/ required work (time, arduousness)</li> <li>→ Links yields/ nature of productions, mobilized production factors, management modes (including risk management) and environment’s factors which had an impact on the production</li> <li>→ Links distribution of productions over time/ nature of productions and implemented technological itineraries</li> <li>→ Links produced quantity/ achieved economic results</li> </ul> |
| <b>In qualitative terms</b>  | <ul style="list-style-type: none"> <li>→ Links classification/ quality of mobilized production factors, management modes, business strategies and environment’s factors which had an impact on the production</li> <li>→ Links classification/ required work (time, arduousness)</li> <li>→ Links classification/ achieved economic results</li> </ul>                                                                                                                                                                                                                               |

#### **i** ILLUSTRATION - EXAMPLES OF GOALS

##### Improving the total produced quantity or the yields

| Examples of actions to be taken:                                                                          | Environment |
|-----------------------------------------------------------------------------------------------------------|-------------|
| ⇒ Addition of quality recycled manure according to the needs of the tomato crops cultivated in sandy soil | ■           |
| ⇒ Hilling practice to limit the effects of the trees’ water stress                                        | ■           |
| ⇒ Investment in the breeding livestock                                                                    | ■ ■         |

##### Improving the distribution of the productions over time

| Examples of actions to be taken:                                                      | Environment |
|---------------------------------------------------------------------------------------|-------------|
| ⇒ Implementation of bean and corn crops associated to cassava, allowing for mid-crops | ■ ■ ■       |

##### Reducing work arduousness

| Examples of actions to be taken:                          | Environment |
|-----------------------------------------------------------|-------------|
| ⇒ Investment in a weeding machine to ease weeding of rice | ■ ■ ■       |




##### Improving production quality

| Examples of actions to be taken:                                                                            | Environment |
|-------------------------------------------------------------------------------------------------------------|-------------|
| ⇒ Introduction of agroecological practices necessary to comply with the specifications set by a cooperative | ■ ■ ■       |
| ⇒ Practice of fruit thinning to obtain bigger sizes                                                         | ■ ■ ■       |



| Results                  | Types of possible interpretations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>In economic terms</b> | <p><b>Analysis of the expenses (by item):</b></p> <ul style="list-style-type: none"> <li>→ Links mobilized quantity/ compliance with the standards (doses, frequency), labor needs (quantity, skills), intra-unit consumption practices, environment's factors which had an impact on the production</li> <li>→ Links costs/ supplying (origin, price, purchasing mode) or intra-unit consumption strategies (production costs), labor mobilization (skills, pay...), investment strategies (nature, quality, origin...)</li> </ul> |
|                          | <p><b>Analysis of the income:</b></p> <ul style="list-style-type: none"> <li>→ Links turnover/ share intended for the farmer and his family's income, share intended for renewal of the activity</li> <li>→ Links selling price/ marketing strategies (place, price, selling period and method), quantity produced and available for sale, quality of sold products</li> <li>→ Links quantity/ needs of the family, produced quantity and self-consumed quantity</li> </ul>                                                         |
|                          | <p><b>Analysis of the margins:</b></p> <ul style="list-style-type: none"> <li>→ Links margins or results/ farmer's needs or fulfilment</li> <li>→ Links margins or results/ required level of work (time, arduousness)</li> <li>→ Links margins/ investment strategies according to the activities' purpose (commercial or not)</li> </ul>                                                                                                                                                                                          |

**i ILLUSTRATION - EXAMPLES OF GOALS**




**II Cutting the expenses**

| Examples of actions to be taken:                                                                             | Environment                                                                         |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| ⇒ Improvement of tree nursery techniques to rationalize the quantity of used seeds and protect the seedlings |  |
| ⇒ Setting up support groups to reduce the costs of soil preparation                                          |  |
| ⇒ Production of liquid biofertilizers to reduce the expenses in foliar fertilizers                           |  |

**II Improving the selling price**

| Examples of actions to be taken:                                               | Environment                                                                         |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| ⇒ Choice of early varieties of tomatoes for a market entry at a favorable time |  |
| ⇒ Choice of direct sale to improve the selling price                           |  |

**II Increasing a farm's results**

| Examples of actions to be taken:                                            | Environment                                                                           |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| ⇒ Implementation of a new orchard                                           |   |
| ⇒ Optimization of the cultivation surfaces according to the available labor |  |
| ⇒ Increase in the cultivated areas to improve food safety                   |  |




## 2.2- Actions aiming at maintaining the results over time


| Environment     | Types of possible interpretations                                                                                                                                                                                                                                                                     |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Natural</b>  | <ul style="list-style-type: none"> <li>→ Links number of production units/ available resources and environment's changes</li> <li>→ Links implemented practices and systems/ recovering of natural resources</li> <li>→ Links implemented practices and systems/ effects of climate change</li> </ul> |
| <b>Economic</b> | <ul style="list-style-type: none"> <li>→ Links diversification level/ adaptation capacity to the market's changes</li> <li>→ Links trade practices/ market's changes</li> <li>→ Links cultivation practices/ market's changes to maintain and/or increase product quality</li> </ul>                  |
| <b>Social</b>   | <ul style="list-style-type: none"> <li>→ Links PO's collective functioning/ results of the production activities</li> <li>→ Links analysis of the VSEs' level of integration in the socio-professional environments</li> </ul>                                                                        |

### **i** ILLUSTRATION - EXAMPLES OF GOALS


#### ▶▶ Maintaining the yield over time

| Examples of actions to be taken:                                                                                                   | Environment                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| ⇒ Organic-based fertilization practices to maintain soil structure and its capacities to retain water and set the mineral elements |  |

#### ▶▶ Diversification of the production

| Examples of actions to be taken:                                                      | Environment                                                                         |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| ⇒ Introduction of new vegetable crops adapted to the agrosystem and the market demand |  |

#### ▶▶ Improving a PO's operational management

| Examples of actions to be taken:                                               | Environment                                                                         |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| ⇒ Implementation of control and checking procedures via a management committee |  |



Systems of diversified crops, Madagascar

### 3- The combined analyses

Although the analyses are indicator-specific, it is often necessary to combine the analyses:

- ▶ **technical and economic** to assess the relevancy of the technical choices compared with the economic implications (and vice versa)  
*Ex. improvement of tomato yield at the expense of organoleptic qualities.*
- ▶ **per cycle, sub-unit, or VSE** to identify the priority activities at the VSE's scale and define the specific improvements of these activities  
*Ex. targeting of a feed corn production sub-unit in relation to a pig breeding extension project.*
- ▶ **from the advisor's and the VSE's points of view** to ensure relevancy of the recommendations (links with the managers' strategies)  
*Ex. risk management and self-consumption strategies requested by the VSE instead of profit maximization suggested by the advisor.*



Combined analysis, Cambodia

### Advantages and disadvantages

- 👉 Analyzing the results allows to identify improvements and concrete actions to share with the VSEs.
- 👉 Comparisons facilitate identification of the margins for progress.
- 👉 The analysis should consider the goals and strategies of the farmers to address their concerns.
- 👉 Taking all factors and interactions into account can be difficult.
- 👉 The advisors may find it hard to take the farmers' social goals into account, as they can deviate from the technical and economic potentials (yields, margins).

#### 📌 KEY POINTS TO REMEMBER

The analysis focuses on the technical and economic indicators of the activities' results and on the environment's information. In the case of the POs, the changes in the collective functioning should also be taken into consideration.

Quality of the analyses depends first on the quality of the information collected throughout the period.

This prior analysis work is necessary so that the advisor has the proper tools to share the observations, analyses and recommendations with the VSEs.

#### 📄 TO GO FURTHER

Sheet "Sharing the analyses with the VSEs"

Sheet "Supporting the implementation of the guidelines"

Once the analysis of the results has been carried out, the advisor prepares the **sharing of the analyses** with the VSEs.

It is about presenting the observations at the end of a given period, discussing the interpretations, suggesting and adjusting the recommendations according to the farmers' points of view. The objective is to support them in the decision-making for the following period.

Following the sharing, the advisor helps in the implementation of the new guidelines.

## Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

## Goals:

- » Presenting the results of the activities and the interpretations
- » As the case may be, presenting the evolution of the PO's collective functioning
- » Explaining the identified improvements
- » Suggesting guidelines and actions to achieve them

## Conditions for implementation:

- » Achieving the analysis of the results

## Principle

Sharing of the analyses is achieved after a given period to help the VSE take decisions for the following period.

It concerns:

- ➔ the result indicators and the comparative data,
- ➔ the specific and crossed interpretations of the various indicators, taking sustainability into account,
- ➔ the recommended improvements and the identified actions.

To facilitate the sharing, and with an aim at an analytical capability transfer, the advisor produces materials (written or oral) which will be presented during meetings with each VSE (individual reporting session) or group of VSEs (collective reporting session).



Individual reporting session, Senegal



Collective reporting session, Cambodia

## Method

### 1- Production of materials

The media vary according to the type of reporting (individual or collective) and the public (ability or not to read).

In any case, these media should facilitate understanding and enable the farmers to progressively build some autonomous analytical skills.

The media generally have the following structure:

### 1. General information

#### ⇒ Characteristic elements of the monitoring

*For the VSE: name, location, nature of the productions, monitoring period, size of the activities (surface area, number of heads, processed volume...)*

*For a group of VSEs: number of monitored VSEs, monitoring period, number and nature of the productions carried out...*

#### ⇒ Reminder of the set objectives and guidelines undertaken at the beginning of the period

#### ⇒ Potentially, mention of the particular conditions that marked the period

Elements concerned by the analysis and characteristics of the monitoring period

### 2. Analysis of the results

#### ⇒ Presentation and interpretation of the indicators

*Presentation: nature of the indicator, obtained value, comparison (in time, space, etc.)*

*Interpretation: linking with the elements of the production system, notably the crop, livestock farming or processing systems, and with the changes in the environment during the period*

*Sustainability taken into account: monitoring of the natural resources, social observations and changes in the economic environment*

#### ⇒ Guidelines and actions for an improvement of the results or their maintenance over time

Elements of the result analyses (indicators, interpretations and guidelines)

### TO NOTE

In the “Analysis” part, the media can contain specific spaces intended for exchanges with the VSEs in a skill transfer context.

### 3. Other considerations

#### ⇒ Highlighting of the differences observed with other particularly performing production systems (important margins, high yields, production quality...)

Items for discussion




Sharing of the analyses, DR Congo

### TO NOTE

Generally, the media for individual reporting sessions are presented in the form of sheets and the media for collective reporting sessions are presented in the form of slideshows

**IGRAN N'ASNI PROJECT – MOROCCO**  
Professionalization of fruit farms & valorization of their production



**Producer:** AIT AHMED Brahim

**Village:** Tagadirt

**Campaign:** 2011 (10 months)

**Cultivated area:** 17,500m<sup>2</sup>

**Number of trees:** 662

**Overall results**

- Total expenses: MAD19,402
- Total sales: MAD52,850
- Operating income: MAD33,447

**Observations:**  
Performing campaign carried out in 2011 with a margin/tree higher than the supported producers' average.

Margin/tree

- Producer: MAD50
- Consolidated income: MAD45

Expenses/tree

- Producer: MAD29
- Consolidated income: MAD26

Income/tree

- Producer: MAD80
- Consolidated income: MAD70

**Findings:**

- Expenses/tree slightly higher than the supported producers' average
- ⇒ Possible margin for progress to reduce expenses
- Income/tree higher than average
- ⇒ Good valorization of the products

**Recommendations:**

- Applying the good cultivation techniques to maintain a good level of valorization of the products on the markets
- Searching for mutualization strategies to cut the expenses

**Expenses/operating income**

The producer's share expenses/operating income is identical to the average share (all supported producers)

**Expenditure pattern**

**Findings:**

- 3 main cost items: labor, fertilization and treatment
- Expenses linked to commercialization = 3% (majority of the sales carried out at farmgate)

**Recommendation:**

- For some works (hoeing, trimming), considering mutualization strategies with other producers in order to cut labor expenditures

**Sales pattern**

**Findings:**

- The golden is present in similar proportions to the delicious, but it represents only 22% of sales (43% for the delicious). This difference can be explained by the price on the market and by the golden's sensitivity to climatic variations (sources of soiling this year).
- The pears (Williams and Lejaune) represent only 8 and 9% although they have a very good value on the market.

**Recommendation:**

- Applying the good trimming and thinning practices on the pear tree.

**Fertilization**

**Finding:**

- For this campaign, almost 2/3 of the fertilization are based on organic matter inputs (technical advantage = management of fertility over time).

**Recommendation:**

- Keeping on with the organic fertilization process (maintenance of the productive potential) while referring to the soil analyses to set the 2012 manuring plan

**Treatment**

**Findings:**

- Start of a plant-health control's integrated approach for this campaign (survey traps...)
- More than 65% of the treatment products used are natural products (techno-economic advantage = sanitary quality of the products to valorize on the markets)
- The natural products remain difficult to access in quantity and price-wise

**Recommendations:**

- Keeping on with the integrated pest management (decrease of the phytosanitary pressure and therefore the resort to treatments; logic of quality products to better valorize on the markets)
- Thinking of solutions to facilitate access to natural products (cooperative?)

Example of personalized media showing the indicators, comparisons, analyses and advice, vegetable and food-crop production sub-units, DR Congo

| TECHNO-ECONOMIC RESULTS                     |                          | René MANANGA NZUZI           |                       |                 |        |               |
|---------------------------------------------|--------------------------|------------------------------|-----------------------|-----------------|--------|---------------|
| Zone: Tshela                                |                          | Village of                   |                       | Kimbianga Site  |        |               |
| FARM TECHNICAL INFORMATION                  |                          |                              |                       |                 |        |               |
| Number of cycles                            | 4 cycles                 | Total harvested quantity     | 1,881kg               | 100%            |        |               |
| Total harvested surface                     | 3,294m <sup>2</sup>      | Total marketed quantity      | 180kg                 | 10%             |        |               |
| Average harvested surface                   | 824m <sup>2</sup> /cycle | Total self-consumed quantity | 748kg                 | 40%             |        |               |
| Starting date                               | oct.-13                  | Total stored quantity        | 30kg                  | 2%              |        |               |
| Ending date                                 | jan.-15                  |                              |                       |                 |        |               |
| Monitoring duration                         | 15 months                | Average yield                | 1.30kg/m <sup>2</sup> |                 |        |               |
| FARM ECONOMIC INFORMATION                   |                          |                              |                       |                 |        |               |
| Total expenses                              | 111,500 Fc               | Total revenues               | 478,500 Fc            |                 |        |               |
| Total variable expenses                     | 111,500 Fc               | 100%                         | Turnover              | 376,944 Fc      | 79%    |               |
| Seeds                                       | 49,500 Fc                | 44%                          | Self-consumption      | 94,056 Fc       | 20%    |               |
| Organic matter                              | Fc                       |                              | Other products        | Fc              |        |               |
| Pesticides                                  | Fc                       |                              | Inventory change (+)  | 7,500 Fc        | 2%     |               |
| Labor                                       | 62,000 Fc                | 56%                          |                       |                 |        |               |
| Others                                      | Fc                       |                              | Net income            | 392,600 Fc      |        |               |
| Total fixed expenses                        | Fc                       |                              | Monthly income        | 26,115 Fc/month |        |               |
| Fixed expenses                              | Fc                       |                              | Self-consumption rate | 20%             |        |               |
| Depreciation charge                         | Fc                       |                              | Average selling price | 250 Fc/kg       |        |               |
| Inventory change (-)                        | Fc                       |                              |                       |                 |        |               |
| 2. Technical and economic results per cycle |                          |                              |                       |                 |        |               |
| Crops                                       | Unit                     | 2013-2014 A                  |                       | 2014 C          |        | Overall total |
|                                             |                          | Peanut                       | Cassava               | Onion           | Tomato |               |
| Number of cycles                            | cycle                    | 1                            | 1                     | 1               | 1      | 4             |
| Cultivated area                             | m <sup>2</sup>           | 2,000                        | 1,000                 | 264             | 30     | 3,294         |
| Cycle duration                              | days                     | 110                          | 450                   | 156             | 117    | 347           |
| Sold quantity                               | kg                       | 180                          |                       | 350             | 60     | 590           |
| Self-consumed quantity                      | kg                       | 45                           | 641                   | 50              | 12     | 748           |
| Stored quantity                             | kg                       | 30                           |                       |                 |        | 30            |
| Harvested quantity                          | kg                       | 255                          | 1,153.7               | 400             | 72     | 1,880.7       |
| Average yield                               | kg/m <sup>2</sup>        | 0.13                         | 1.15                  | 1.52            | 2.40   | 1.30          |
| Seeds                                       | Fc                       | 26,500                       |                       | 23,000          |        | 49,500        |
| Organic matter                              | Fc                       |                              |                       |                 |        |               |
| Pesticides                                  | Fc                       |                              |                       |                 |        |               |
| Labor                                       | Fc                       |                              |                       |                 |        |               |
| Others                                      | Fc                       |                              |                       |                 |        |               |
| Total expenses                              | Fc                       | 58,500                       |                       | 53,000          |        | 111,500       |
| Average expenses/m <sup>2</sup>             | Fc                       | 29.3                         |                       | 200.8           |        | 33.8          |
| Total income                                | Fc                       | 110,500                      | 64,000                | 280,000         | 24,000 | 478,500       |
| Average income/m <sup>2</sup>               | Fc                       | 0.2                          | 0.1                   | 5.5             | 6.8    | 3.2           |
| Average selling price/kg                    | Fc                       | 433                          | 55                    | 700             | 333    | 254           |
| Margin                                      | Fc                       | 52,000                       | 89,600                | 227,000         | 24,000 | 392,600       |
| Average margin/m <sup>2</sup>               | Fc                       | 26                           | 90                    | 860             | 800    | 444           |
| Average margin/m <sup>2</sup> /d            | Fc                       | 0.24                         | 0.09                  | 5.51            | 6.84   | 3.17          |

## OBSERVATIONS

The monthly income is low, it can be improved with a decrease in the labor expenses, improvement in the produced quantities and valorization of the products (prices). The market gardening sub-unit is the most profitable.

## Vegetable production

**Onion:** slight improvement of the yield thanks to an improvement of the rows' preparation (input of basal dressing fertilizer). This improvement may continue if the irrigations are more effective: watering at night, transplanting through mulch, fodder crops. The sale price is better but can still be improved by an earlier sale thanks to plant nursery tables at the end of the rainy season.

**Tomato:** the margin/m<sup>2</sup> and the margin/m<sup>2</sup>/d are good, it can be relevant to diversify the vegetable production with this crop (safety) by increasing the surface intended for production. The income could be improved with the purchase of selected tomatoes (Caribbean variety adapted to the conditions) with a better selling price.

## Food-crop production

**Peanut:** good yield but low selling price, possibility to improve the margin by selling at a better price by storing the peanut for 1.5-2 months. Implementation of a corn/peanut combination would enable to have corn to sell to generate an income pending the sale of peanut.

**Cassava:** possible improvement of the yields using Rav4 or Zizila varieties, the cassava cultivation is long but enables regular products (self-consumption and sale). It could be interesting to combine one or two crops (peanut, bean, cowpea, corn, pigeon pea...) to the manioc cycle to improve the soil cover, limit weeding and benefit from mid-crops.

**Crop seasons:** The 2014 B season could allow to achieve a cowpea cycle to valorize each season and obtain additional products. Technically, the cultivation of cowpea will enable to limit weed pressure on the plots (decrease in expenses in weeding).

## Overall results

**Average results of a market gardening farm**

Technical

- ✓ **7 implemented cycles**
- ✓ **1,300m<sup>2</sup> cultivated**
- ✓ **2 tons of harvested vegetables**
- ✓ **Average yield: 1.7kg/m<sup>2</sup>**

Economic

- ✓ **Selling price: 1,600 Riels/kg**
- ✓ **Expenses: 0.07\$/m<sup>2</sup>**
- ✓ **Margin: 1,550 Riels/m<sup>2</sup>**
- ✓ **Monthly income: \$66**

**Observations : comparison with the reference situation**

- ✓ Increase in the selling price: **+ 400 Riels/kg**
- ✓ Increase in the monthly income: **+ \$18**
- ✓ Increase in the yield: **1.4→1.7kg/m<sup>2</sup>**

## Expense analysis

Economic

Expense analysis

**Expenditure for 1m<sup>2</sup>: 274 Riels**

- Synthetic fertilizers: 88 Riels
- Organic supplements: 6 Riels
- Seeds: 95 Riels
- Pesticides: 25 Riels
- Irrigation: 7 Riels
- Others: 53 Riels

**Observation and analysis:**  
**The seeds represent the most important** expenditure item  
**The expenses in pesticides are relatively low** (little use) **The organic supplements** mostly are **intra-unit consumption**  
 → *The costs of the synthetic fertilizers can be reduced by the use of liquid biofertilizers, poultry manure and pig manure.*

## Result analysis: Diversification

Technical

Result analysis: Diversification

| Crops              | Number of concerned producers |
|--------------------|-------------------------------|
| Cucumber           | 14                            |
| Salad              | 10                            |
| Bindweed           | 10                            |
| Chinese watercress | 9                             |
| Yardlong bean      | 8                             |
| Petsai cabbage     | 7                             |
| Green mustard      | 4                             |
| Grass              | 3                             |
| Vietnamese luffa   | 3                             |
| Tomato             | 3                             |
| Angled luffa       | 3                             |
| Long eggplant      | 2                             |
| Winter melon       | 2                             |
| Round eggplant     | 2                             |
| Squash             | 2                             |
| Corn               | 2                             |
| Green onion        | 2                             |

**Observation and analysis:**  
**25 different practiced crops**  
 → **Broad diversification**  
**New introduced crops:** watermelon, pumpkin, pak choi cabbage and small round eggplant. **The most common crops:** cucumber, salad, bindweed, Chinese watercress and yardlong bean  
 → **Good balance between the productions**  
*The diversification efforts should be maintained in compliance with the association and crop rotation rules.*

*For a producer: chili, small round eggplant, white radish, watermelon, pumpkin, Chinese cabbage*

## Analysis of the price evolution

Economic

Analysis of the price evolution

**Observation and analysis:**  
**Average selling price:** 1,600 Riels/kg (1,150 Riels in the reference situation)  
**2 main periods of high prices:** flood period (Oct-Nov) and end of dry season (April)  
 Crops with a high price (> 2,000 Riels/m<sup>2</sup>): chili, local herbs, green onion, round eggplant, yardlong bean, salad, small round eggplant.  
 → *The farmers who have the opportunity to produce in rainy season should reinforce their activity during this season to benefit from the best prices*

## 2- Sharing the analyses

Reporting sessions are planned at regular intervals to ensure their usefulness to the farmers (guidelines for the new seasons, campaigns, years).

They are based on an exchange approach to reach decision-making: acceptance, adaptation or refusal of the solutions offered.

Therefore, it is important that the advisor:

- ▶ clearly presents the information and reminds the farmers of the calculation and analysis modes,
- ▶ masters the topic both on the technical and economic plans to ensure relevancy of his suggestions regarding the questions asked and the farmers' reactions,
- ▶ has a good knowledge of the VSEs and their environment to adapt his suggestions and do so with the trust of each farmer,
- ▶ has a systemic point of view to take all technical, economic, environmental or social elements into account which could have an impact on the decisions.

Besides, the reporting sessions should favor:

- simplicity over comprehensiveness in the presentation of the information,
- the media's attractiveness,
- a convivial atmosphere.

As part of the group advising, an individual follow-up is necessary afterwards to help each VSE adapt and implement the guidelines or to engage in further discussion to complete decision-making.

## Advantages and disadvantages

- 👉 The advisor encourages the farmers' empowerment by directly involving them in the validation of the analyses. He has a facilitating role by offering elements that allow them to take their own decisions.
- 👉 Group analysis work enables the participants to exchange experiences and information and pushes them to trigger changes.
- 👉 Individualized analyses enable to deepen the reasoning and to offer personalized solutions.
- 👉 Drawing graphs and sketches facilitates understanding.
- 👉 Production of media requires an important preparation time as a result of the diversity of the information to take into account (indicators, components of the environment, components of the production systems).
- 👉 Generally, the group analyses also offer guidelines but do not always enable to identify solutions adapted to each VSE.

### KEY POINTS TO REMEMBER

The production of media should enable the advisor to present the results of the VSEs in a sharing approach.

The advising is achieved through discussions with the farmers, during which the advisor favors the transfer of the analytical ability while conveying the useful messages.

To have a relevant advising, the advisor must master his subject perfectly.

### TO GO FURTHER

Sheet "Supporting the implementation of the guidelines"



Assessment of the pepper production and processing campaign, Sao Tomé e Príncipe



The advisor **supports the implementation** of the decisions taken upon sharing of the analyses.

One of the important stages of this approach is the support to the activities' planning. It enables the farmers to follow a roadmap for the period and to define the strategies to reach the expected results.

Afterwards, in the course of the advising, adjustments can be suggested if necessary.

## Levels of analysis:

| VSE                             |              | Environment |
|---------------------------------|--------------|-------------|
| Farmer and his family's profile | PO's profile | Natural     |
| Farming system                  |              | Economic    |
| Results                         |              | Social      |

## Goals:

- » Facilitating the implementation of the decisions taken for the period
- » Determining the potential adjustments to cope with the difficulties encountered
- » Addressing the concerns of the farmers and supporting them in the decision-making in the course of the activities

## Conditions for implementation:

- » Defining and validating the guidelines

## Principle

Support is implemented by the advisor as soon as the decisions have been taken with the VSEs (cf. Sheets *"Analyzing the VSEs' results"* and *"Sharing the analyses with the VSEs"*).

It consists in:

- ➔ achieving the programming of activities with the farmers within a skill transfer approach (progressive empowerment),
- ➔ ensuring smooth progress of the activities and dealing with unexpected events (cf. Sheet *"Accompanying the implementation of the 1<sup>st</sup> guidelines"* from the *"Basic Initial Advising"* part).

This sheet specifically presents the support offered to the programming of the activities.

## Method

Support to programming is generally achieved with each VSE at the start of a new period. It can also be achieved with a limited group of VSEs, with similar profiles and productions and which have validated the same guidelines.

Support to programming focuses on the changes to make according to the guidelines chosen.

These changes mainly concern one or several elements of the farming system:



**✍ TO NOTE**

In addition to the farming systems, the changes can concern the collective functioning (specific case of the POs) or the relations of the VSE with its socio-professional environment (integration into the networks).

To operate these changes, two steps are taken into account:



Estimating the needs, Morocco

## 1- Integration of the guidelines into the farming systems

### 1.1- Use of space

The change of scale of a production, or the introduction of new productions (vegetal and/or animal), have an impact on the spatial organization of the activities.

If guidelines have been decided in that sense, the advisor makes sure that, when programming, the VSE considers:

- ➔ the characteristics of the land according to the types and needs of the productions,
- ➔ spatial arrangement of the resources to be mobilized (water, biomass...) and the equipment to mobilize them in a sustainable way (ex. low-lying ground equipped for irrigation),
- ➔ the complementarities among productions and among sub-units (ex. implementation of pork sub-units nearby fish ponds to fertilize the ponds),
- ➔ the practices (ex. return of a potato crop every 5 years on the same plot),
- ➔ the buildings, the productive immobilizations and the existing equipment (ex. implementation of pasture on a fenced plot).

The goal is to create the most favorable conditions for the productions and to minimize transport and displacement.

### 1.2- The calendar

Modifications in the calendar (for an early entry into production for instance) or the introduction of new productions can be decided. In this case, the advisor makes sure that, in its programming, the VSE considers:

- ➔ the best periods for sale on the targeted markets (ex. period of high prices for the sheep during religious holidays),
- ➔ the climate conditions of the seasons to adapt the practices (ex. installation of shadehouses to face the strong heat, shaping the planks to facilitate drainage during the rainy season...),
- ➔ the characteristics of the varieties and races defining their degree of sensitivity and adjustment (ex. choice of varieties of red onions in rainy season),
- ➔ the cropping calendar of the other productions to avoid work overload in certain periods or overuse of the equipment (ex. progressive setting-up of anti-erosion equipment as the soils are getting prepared),

- ➔ the equipment available or to purchase (ex. storing or processing equipment).

The goal is to adapt to the climate (implementation of measures to minimize the seasonal constraints) and to sell during the targeted periods.

### 1.3- The practices

Guidelines may have been decided about the modifications of the practices or the adoption of new technological itineraries.

In this case, upon programming, the advisor helps the VSE identify the needs for implementation (workforce, inputs, materials and equipment, productive immobilization, knowledge and savoir-faire) in order to:

- ➔ make sure the production factors are available at the appropriate time,
- ➔ ensure the VSE's ability to implement the practice.

Specific needs as regards the organization mode (mutual aid) can be identified.



## 1.4- Input supplying

The chosen guidelines aim at ensuring the availability of the inputs in due course, at minimum cost and arduousness.

While programming, the advisor:

- ➔ makes sure that the VSE has the necessary information to choose the suppliers and strategies (joint purchase with other VSEs...)
  - Ex. *contacting a nurseryman for the purchase of plants and definition of a joint buying strategy to obtain a wholesale price.*
- ➔ if need be, helps the VSE identify the needs and technological itineraries for the production of inputs (use of space, calendar, practices)
  - Ex. *Implementation conditions of a production of liquid biofertilizer at the rate of 200L every 2 weeks to answer the market gardening needs.*

### TO NOTE

At this stage, the advisor favors the guidelines that minimize purchases: strategies of intra-unit consumption, mutualization, mobilization of substitutes. If need be, better supplying strategies should be thought of or resort to the available external services.

## 1.5- Disposal of the products

While programming, the advisor makes sure that the VSE considers:

- ➔ the balance between self-consumption and sales, with a calculation of the family's needs and of the minimum turnover necessary to the renewal of the activity
  - Ex. *beyond 75% of self-consumption, the market gardening activity cannot be maintained due to a lack of financial resources.*
- ➔ the favorable periods for sale and the selling modes (wholesale, grouping of a VSE's offer with the other VSEs' offers...) to improve the turnover
- ➔ the seasonal constraints, especially in case of new productions

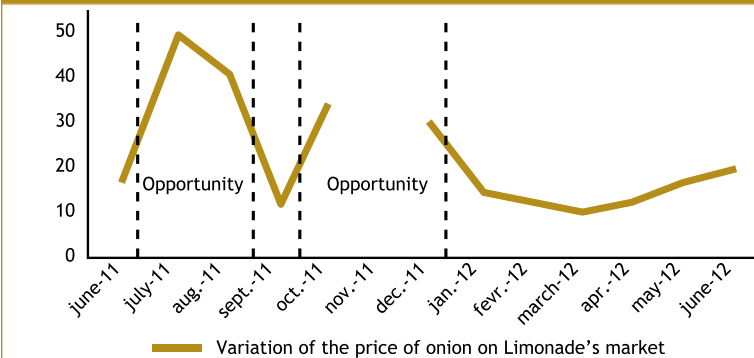
### TO NOTE

The changes related to one element of the production system have an impact on the other elements and must be taken into consideration.

Ex. *changes in practices in relation to a change in the calendar.*

The discussion with the VSE should progressively enable to adjust the action plan for the period. If necessary, the advisor supplies the techno-economic information on the environment to support the choices made.

## i ILLUSTRATION – SUPPORT TO THE CHANGES IN THE FARMING SYSTEM/ HAITI



| Calendar                                    | J          | A           | S     | O                     | N | D | J | F            | M        | A           | M | J            |
|---------------------------------------------|------------|-------------|-------|-----------------------|---|---|---|--------------|----------|-------------|---|--------------|
| Seasonal constraints                        |            |             |       |                       |   |   |   |              |          |             |   |              |
| Rainfalls                                   |            |             | Heavy |                       |   |   |   |              |          |             |   |              |
| Heat                                        | Intensive  |             |       |                       |   |   |   |              | Moderate |             |   |              |
| Opportunities on Limonade's market          |            |             |       |                       |   |   |   |              |          |             |   |              |
| Opportunities                               | High price |             |       | High price + shortage |   |   |   |              |          |             |   |              |
| Recommended technological itineraries (TKI) |            |             |       |                       |   |   |   |              |          |             |   |              |
| TKI 1                                       | Harvest    |             |       |                       |   |   |   | Tree nursery |          | Maintenance |   |              |
| TKI 2                                       |            | Maintenance |       | Harvest               |   |   |   |              |          |             |   | Tree nursery |

|       | Plot preparation                                                         | Harvest                                                                                              | Focal points                                                                   |
|-------|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| TKI 1 | Shaping hollow beds<br>Hedging with drought-resistant crops (Congo peas) | Stopping irrigation 2 to 3 weeks before harvesting for a storage onion                               | Important irrigation needs, adapting the surface area to the watering capacity |
| TKI 2 | Shaping the beds<br>Hedging with drought-resistant crops (Congo peas)    | Onions harvested in rainy season more difficult to store, to be sold green (in bunches with foliage) | Important irrigation needs during the first months                             |

## 2- Calculation of the needs to implement the guidelines

### 2.1- Calculation of the quantities

Two types of needs must be quantified:

- ▶ **the campaign needs:** inputs, labor and other consumables purchased and used in the course of the cycle or the period.

The nature of these needs is determined during the previous stage according to the type of productions, the use of space, the calendar and the practices.

*Ex. choice of a variety of Roma tomato, the flower stalk of which is more resistant to heavy rains: cultivated on sandy soils, it requires an addition of little-rotted compost.*

The quantities are assessed according to the type of production, the number of concerned units, the environment's quality and the technical standards.

*Ex. need of 3kg/m<sup>2</sup> of basal organic manure (that is 300kg for 100m<sup>2</sup>), 1kg/m<sup>2</sup> in well-rotted maintenance manure (100kg for 100m<sup>2</sup>) brought before flowering.*

The needs to be met correspond to the identified needs minus the means available at the VSE's level.

*Ex. in the farm, availability of 100kg of recycled manure which can replace the compost, 200kg have to be purchased for the basal dressing. 100kg may be available if a compost is prepared at the start of the season. A bag of 10g of seeds must be purchased.*

- ▶ **the investments:** equipment, buildings and productive capital assets for several production cycles.

They are sized according to the targeted production goals (quantities) and peak times regarding the equipment (quantities/hour).

*Ex. assessment of cassava volumes in peak times and decision regarding the use of cassava mill according to its potential yield.*



Variety of local tomatoes, Ivory Coast



Variety of Roma tomatoes, Haiti



Recycled manure, Ivory Coast



Newly-prepared compost, Laos

## 2.2- Calculation of the financial needs

The amount of needs (purchasing cost or mobilization cost) required for the campaign is assessed according to the supplying places and strategies.

*Ex. in Haiti, the mobilization cost of a local mutual aid group for the preparation of soils is equal to the group's meal cost, that is 2,000 gourdes for 20 people.*

Once they have been assessed, the amounts are set against the available cash and the assessment of the future turnover to cover them (quantities, selling prices, selling timescale and frequency are taken into account). In case of too important gaps or delays, adjustments are made in the programming.

The amount of the investments is assessed according to the costs announced by the suppliers and the other costs necessary to their implementation (labor, transport...). This amount is set against the VSE's capacity to self-finance all or part of the investment. Based on this, financing strategies are defined according to the environment's opportunities (subsidies, loan possibility...).

In case of inability to find the necessary resources, scaling must be reviewed, or investment postponed. In case of postponement, a saving strategy can be defined to build up the required funds for the future investment.



Advisor and producer, Cambodia

## Advantages and disadvantages

- 👉 The work to integrate the guidelines into the programming of the activities secures the farmers in their actual implementation.
- 👉 The expenditure forecast enables to anticipate the implementation of the strategies necessary to cover them at the appropriate time.
- 👉 The programming can be adapted to the targeted scale: cycle, sub-unit, VSE.
- 🗨️ The individual advising about programming takes time if it concerns all the farm's activities; it is partial if it concerns only one cycle or one sub-unit.
- 🗨️ For the VSEs, reflection on the financial needs and their evolution is complicated as there is no distinction between the farming activity's fund and the fund used to cover the family's needs.

### KEY POINTS TO REMEMBER

Support in the implementation of the guidelines takes place before a new production period. It enables the VSEs to introduce changes in their usual production program, then to follow-up their implementation in real time to suggest potential adjustments.

The programming stage is based on data from the analysis of the VSE's results for the previous period and on the decisions taken.

The purpose is to anticipate a production period, a new production, a new practice, to become aware of the new needs. Without necessarily performing a detailed financial analysis, the advisor helps the farmer calculate his needs for the campaign and implement strategies to cover them.

It is an iterative process based on an initial plan that is revised at each stage depending on the difficulties and solutions contemplated.

# Glossary

**Agricultural sector** Chain of operators upstream and downstream the agricultural production.

**Agricultural service** Farming activity entrusted to a third as a remunerated performance.

*Ex. ploughing performance, processing service*

**Agroeconomy** Agricultural economics (economics of production, processing, marketing and consumption of agricultural products in the broad sense).

**Agroecosystem** Ecosystem in which men intervene through agricultural activities.

**Animal production** All productions deriving from the exploitation of breeding animals.

**Annuity products** Agricultural products mostly intended for marketing in order to generate important, regular income.

**Average Daily Gain (ADG)** Performance indicator of a fattening livestock farming assessed in weight gained daily in the course of the fattening activity.  
 $ADG = (Final\ number\ of\ kg - number\ of\ kg\ at\ the\ start) / cycle\ duration$

**Biodiversity** Natural diversity of living organisms.

**Birth rate** Number of births/ total number of reproductive females.

**Bodies of an association** The constitutive elements of an organization, the tasks and responsibilities of which are clearly defined.

*Ex. general assembly, board, committees*

**Cash flow** Amount of money available in cash or on a bank account. For the family VSEs, there is no distinction between the VSE's money and the family's, which often makes cash flow analyses difficult.

**Characterize (to)** To precisely describe and analyze.

**Cooperative** Economic entity based on the principle of cooperation of its members, often around a common interest (sharing of equipment and infrastructure, grouped sale...).

**Cost price (or actual cost)** All the expenses related to production, storing and marketing of a good or a service produced by the VSE. To be analyzable, it is reduced to the marketed unit.

$Cost\ price\ by\ unit = (production\ cost + storage\ and\ marketing\ cost) / number\ of\ marketed\ units$

**Crop/ livestock farming/ processing system** Represents a set of technical arrangements implemented in one or several operating units (plot of land, livestock building...) processed identically (M. Sébillote).

**Cycle duration** Number of days from the beginning to the end of a production cycle (or date of cycle end - date of cycle start).

**Data processing** Method to manage and combine data in order to analyze them.

**Deficit** Negative difference between the sum of income and the sum of expenses during a given period.

**Depreciation** Staggering of the cost of an investment over its duration of use. The depreciation of an investment is a fixed expense which enables to consider the economic and accounting cost related to an investment made at a given time but used over several years or production cycles. Moreover, it enables to assess the depreciation of the investment over time (value of the investment - successive depreciations).

$Depreciation\ of\ an\ investment\ for\ a\ production\ period = investment\ total\ cost / depreciation\ period \times production\ period\ considered\ for\ analysis$

**Depreciation charges** Calculated value of one or several depreciations for a given period (for one or several types of equipment).

**Drainage basin** Geomorphological unit delimited by the watershed, inside of which all waters feed a same outfall.

**Ecosystem** All interacting living organisms within a determined natural environment.

**EIG** Economic Interest Group.

**EIS** Environmental Information System.

**Environment** Location of the farm's activity, it is composed of natural, economic and social elements.

**Farm** In a given environment, production unit within which people mobilize and combine production factors within a system to obtain agricultural and/or agriculture-related products, intended to be consumed and/or sold.

**Farming system** A farm's farming system is the combination of the production factors, the crop/livestock/processing systems, and the elements related to the productions' destination. It is the unit of analysis for the farm as part of the management advising.

**Financial costs** Expenditure arising from resort to external funding (bank fees, loan interest, agios...).

**Fixed expenses** The fixed expenses are composed of the expenses independent from the farm's level of activity: the constant expenditure (rents, fees, permanent staff...), depreciation of investments, financial costs (in case the farmer resorted to a loan).

*Fixed expenses total = total of constant expenditure not proportional to the volume of activity + financial costs for the period in question + depreciation charges for the period in question.*

**Focus group** Survey method achieved in presence of a group of informers gathered for a discussion centered around topics concerning all participants.

**Food products** Agricultural products intended for self-consumption and subsistence economy (disposal on the markets of basic food agricultural products for local consumption).

**Gain (economic)** When the operating income (or the margin of a cycle) is positive.

**General assembly** Meeting of all members of an organization so that they meet the managing members and possibly take decisions regarding the organization's operations.

**Gross earning** Economic result of a farm for a specific period, exclusive of fixed expenses.

*Gross earning = sum of income - sum of variable expenses + variations of stock's value*

**Gross margin** Economic result of a production cycle or a sub-unit for a specific period, exclusive of fixed expenses.

*Gross margin = sum of income - sum of variable expenses*

**Income** Sum of the revenues generated by the farm's operation, enabling an increase in the earning.

*Income = turnover (sales) + valorization of self-consumptions + positive variation of the stock and livestock value*

**Income statement** Accounting document showing in a summarized way all the expenses and income of a VSE, as well as the result obtained for a given period.

**Indicator** Assessment tool enabling a qualitative or quantitative measurement.

**Infant mortality rate** Number of pups dead before weaning/ number of pups born.

**Inputs** Products consumed as part of an agricultural production.

*Ex. seeds, fertilizers, veterinary products...*

**Intermediary consumptions** All the goods and services consumed in the course of the production process for a given time.

**Intra-unit consumption** Share of production used as inputs in the farm's other production cycles.

*Value of intra-unit consumption = intra-unit consumed quantity x production cost*

**Investment** Financial mean mobilized for the purchase of an equipment, construction of a building, purchase of a plot of land or productive capital assets (plantings, breeders), the use of which will be spread over an extended period (several cycles and seasons).

**Labor** Workforce mobilized to perform the agricultural activities.

**Land** Related to a land base where the farming activities are located. The land is characterized by its direct type of occupancy (property) or indirect type of occupancy (rental, sharecropping).

**Loss (economic)** When the operating income (or the margin of a cycle) is negative.

**Loss rate** Quantities lost/ quantities produced.

**Market** Place where supply and demand meet.

**MIS** Market Information System implemented to monitor the evolution of the price of agricultural products, their origin and sometimes the volumes exchanged on the markets.

**Monthly earning of the farm** Monthly earning = farm earning/ number of months in the period under review.

**Mortality rate** Number of dead/ total number of heads.

**Net earning** Economic result of a farm for a specific period.

*Net earning = sum of income - sum of expenses + variations of stock's value*

*Net earning = gross earning - sum of fixed expenses*

**Net margin** Economic result of a production cycle or a sub-unit for a specific period.

*Net margin = sum of income - sum of expenses*

*Net margin = gross margin - sum of fixed expenses*

**Pedagogy** All methods, practices and savoir-faire related to the transfer of knowledge, know-how or savoir-faire.

**Physiology** What relates to the characteristics, functioning of a living organism and its components (physical, chemical, biological...).

**Phytosanitary/ Zoosanitary** Relates to the health of plants (phyto)/ of animals (zoo).

*Ex. phytosanitary treatment*

**PO** Professional Organization, gathering of people with the same occupation around a common interest. In this guide, the term PO refers to a group of producers.

**Popularization** Dissemination of a know-how, a practice using a pedagogical approach to make it accessible to the great majority.

**Potentials for improvement** Possible level of improvement.

**Precariousness** Precariousness is the absence of one or several securities enabling the people and families to fulfil their elementary responsibilities and to enjoy their fundamental rights. The resulting insecurity can be more or less significant and have more or less serious and definitive consequences (Joseph Wresinski).

**Primary data** Data not available in books, to be collected through surveys.

**Processing** Process of production of finished goods from raw agricultural products.

**Production cost** All the expenses related to the production of a good or a service. To be analyzable, it is reduced to the produced unit.

*Production cost per unit = sum of the production expenses/ number of produced units*

**Production cycle** Time necessary to complete a production, from its implementation to its disposal (consumption or sale).

*Ex. from seed to harvest, or purchase of a fattening animal to its resale*

**Production factors** Mobilized material and immaterial resources within the framework of the agricultural production (land, labor, production mean).

**Productive capital assets** Investment enabling to perform a long-term production in a sustainable way.

**Profit** Positive difference between the sum of income and the sum of expenses during a given period.

**Profitability** Economic indicator putting the profit earned and the resources invested to generate this profit into relation.

*Profitability = earning/ investment*

**Profitability of a cycle** Economic indicator to assess the performance of a cycle.

*Profitability = margin (or earning)/ investment*

**Programming** Organization of the activities for a future period.

**Prolificity rate** Number of born pups/ number of parturitions.

**Ratio** Relation between two values.

**Retail** Sale in restricted quantity generally to the end consumer. Retail is performed in small quantities.

*Ex. sale of bananas by finger, hand, or even bunch*

**Secondary data** Data already collected and available in books.

**Self-consumption** Quantity of production consumed by the producer and his family. Therefore, the production is not sold but it has a value that must be assessed while drawing up the income statement.

*Self-consumption value = consumed quantities x price on the market (or production cost)*

**Self-consumption rate** Value of the products consumed by the family/ total products.

**Selling price** Value given to a product or service in a commercial transaction.

*Average price by sales unit = total revenue/ total sales quantity*

**Size of a cycle, sub-unit or farm** Number of production units in m<sup>2</sup>, plants, heads...

**Speculation** Agricultural production or crop set up in a speculative profit purpose.

**Stock and livestock value** Number of units x unit price (can involve several categories and prices).

**Sub-unit** Production sub-system enabling a separation of the production system by crop, livestock farming and processing system. A production sub-unit is composed of production factors implemented for only one crop, livestock farming or processing system, the system in question and the destination of the concerned products.

**Supply basin of a market** All production zones the products of which are found on a market. The supply basin of a market evolves according to the seasons, in relation to the specificities of the production zones (climate, soil, infrastructures, specialization...).



**Techno-economic analysis** Analysis combining the technical and economic aspects.

**Technological itinerary** Logical and ordered sequence of practices (in time and space) implemented as part of an agricultural production (M. Sébillote).

**TEM** Techno-Economic Monitoring process of the VSEs implemented to measure and analyze their result.

**Territory** Geographical area defined by limits and specific characteristic elements, the territory can be “administrative/juridical”, “natural”, “economic”, “ethnic”, “cultural”...

**Total expenses** Fixed expenses + variable expenses + negative variation of the stock and livestock value for the period under review.

**Total income** Turnover + valorization of consumed or stored unsold products + financial and exceptional products + positive variation of the stock and livestock value for the period under review.

**Turnover** The turnover represents the sum of the sales of products and service provision.

**Utilized Agricultural Area (UAA)** Agricultural area used for production, different from the farm’s total agricultural area.

**Valorize (to)** To give a monetary value to a product or a task.

**Value of intra-unit consumptions** Intra-unit consumed quantities x cost price (market prices as the case may be).

**Value of the variation of stock and livestock** Total final stock and livestock value - total initial stock and livestock value.

**Value of unsold products** Given and self-consumed quantities x cost price (market prices as the case may be).

**Variable costs** The variable costs are composed of the expenses proportionally dependent from the farm’s level of activity and production: purchase of inputs, payment of daily or temporary, fuel, service provision... (including valorizations of the intra-unit consumptions consumed during production) for the period under review. The stocks and livestock’s impairment losses are classified in the variable costs.

*Variable costs total = total of constant expenditure proportional to the volume of activity + valorizations of intra-unit consumptions + stock and livestock impairment losses for the period under review.*

**Variation of stock and livestock value** Change in the stock and livestock value over time due to a change in the number, weight, quality or price on the market.

*Variation of value = total final stock and livestock value - total initial stock and livestock value*

**Vegetal production** All productions deriving from the exploitation of crops.

**VSE** Very Small Enterprise.

**Wholesale** Sale in important quantity generally to wholesalers, semi-wholesalers, intermediaries... Wholesale is generally performed in large quantities.

*Ex. sale by bunch or dozens of bunches*

**Working capital** Volume of money necessary to payment of the production costs for a period, pending receipts.

The working capital is not necessarily equal to the total of the expenses related to the achievement of the cycle as it is replenished by revenues in the course of the cycle.

**Yield** Productivity technical indicator.

*Yield = produced quantities/ number of production units*





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Since 1992, Agrisud has been committed to the promotion of the family farming VSE and of agroecology as levers in the fight against poverty, food insecurity and climate change.

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This guide provides the necessary tools to all those who are committed to playing this advising role in local project teams, organizations in support of development of the North and the South, within technical services or producers' organizations.

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