Global Facilitation Unit for Underutilized Species

Promoting Value Chains of Neglected and Underutilized Species

for Pro-Poor Growth and Biodiversity Conservation

GUIDELINES AND GOOD PRACTICES

Margret Will

Global Facilitation Unit for
Underutilized Species (GFU)
Rome, 2008

Global
Facilitation
Unit
for Underutilized
Species

Promoting Value Chains
of Neglected and Underutilized Species
for Pro-Poor Growth and Biodiversity Conservation

Margret Will

GUIDELINES AND GOOD PRACTICES

Will, M. 2008. Promoting Value Chains of Neglected and Underutilized Species for Pro-Poor Growth and Biodiversity Conservation. Guidelines and Good Practices. Global Facilitation Unit for Underutilized Species, Rome, Italy.

ISBN: 978-92-9043-775-8

Global Facilitation Unit for Underutilized Species (GFU)
Via dei Tre Denari, 472/a
00057 Maccarese
Rome, Italy

Design and layout: Maria Cappadozzi

Contents

Figures

Boxes

Abbreviations

ABS	Access and Benefit Sharing
ALV	African leafy vegetables
BDS	Business Development Services
CBD	[UN] Convention on Biological Diversity
CBI	Centre for the Promotion of Imports from Developing Countries
CGIAR	Consultative Group on International Agricultural Research
CIP	International Potato Center
DAC	Development Assistance Committee
DFID	Department for International Development [UK]
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FIAS	Foreign Investment Advisory Service
GAP	Good Agricultural Practice(s)
GDP	Gross Domestic Product
GFAR	Global Forum on Agricultural Research
GFU	Global Facilitation Unit for Underutilized Species
GI	Geographical Indications
GMO	Genetically Modified Organism(s)
GTZ	Deutsche Gesellschaft fuer Technische Zusammenarbeit [German Technical Cooperation]
ICUC	International Centre for Underutilised Crops
IK	Indigenous Knowledge
IPGRI	International Plant Genetic Resources Institute – now Bioversity International
IPR	Intellectual Property Right(s)
ISEAL	International Social and Environmental Accreditation and Labelling Alliance
ISHS	International Society for Horticultural Science
KIT	Royal Tropical Institute [The Netherlands]
MDG	Millennium Development Goal(s)
MIS	Market Information System
MSTQ	Metrology, Standardization, Testing and Quality Assurance
M4P	Making market systems work better For the Poor
NFR	Novel Food Regulation
NGO	Non-governmental organization
NUS	Neglected and Underutilized Species
OECD	Organisation for Economic Co-Operation and Development
PMCA	Participatory Market Chain Approach
RALIS	Rapid Appraisal of Local Innovation Systems
PDO	Protected Designations of Origin
PGI	Protected Geographical Indication
PO	Producer Organization
PPB	Participatory Plant Breeding
PSD	Private Sector Development
R&D	Research and Development
SDC	Swiss Agency for Development and Cooperation
SECO	Swiss State Secretariat for Economic Affairs
SPS	Sanitary and Phytosanitary Measures
TO	Trader Organization
TSG	Traditional Specialty Guaranteed
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
USP	Unique Selling Proposition
VC	Value Chain
VCD	Value Chain Development
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

The Global Facilitation Unit for Underutilized Species (GFU)

This publication has been commissioned by the Global Facilitation Unit for Underutilized Species (GFU), created to ease and increase information and knowledge exchange in the field of neglected and underutilized species (NUS). GFU's mission is to promote and facilitate the sustainable deployment of underutilized plant species to increase food security and alleviate poverty among the rural and urban poor. Its objective is to support and strengthen organizations and networks working on different aspects of underutilized species through:

- providing improved access to information and financial resources;
- increasing public awareness on the role of underutilized species for improving livelihoods; and
- giving advice to policy-makers on how to create an enabling policy environment for the deployment of underutilized species.

By doing so, GFU aims to attract an increasing number of assistance agencies, research institutions, extension services, policy- and decision-makers to include neglected and underutilized species in their development programmes.

With this publication, the GFU presents guidelines and good practices for value chain development (VCD) of neglected and underutilized species (NUS). It complements manuals on VCD and guidelines for agro-biodiversity conversation with due consideration for the specific features of value chains of NUS.

The guidelines draw upon lessons learnt and good practices described in eight case studies implemented by the GFU and its partners, other published and grey literature on NUS and VCD, and the experience of the author in horticultural marketing and VCD. The case studies assess approaches and results of VCD for various NUS in Africa, Asia, Europe and South America, namely:

- African Garden Egg in Ghana (Horna *et al.* 2007)
- African leafy vegetables in Kenya (Irungu 2007)
- Amla, Kokum and Tamarind in India (Daniel and Dudhade 2007)
- *Garcinia* species in South India (Kruijssen and Mysore, unpublished)[1]
- Minor Millets in India (Gruere *et al.* 2007)
- Emmer in Turkey (Giuliani *et al.*, unpublished)[1]
- Farro in Italy (Buerli 2006) and
- Maca in Peru (Hermann and Bernet, unpublished)[1]

Objectives and target groups

The objectives of this publication are to:

- provide recommendations on how to gear VCD of NUS to pro-poor growth;
- elaborate on challenges and opportunities in marketing of NUS;
- highlight success factors enhancing the utilization of the potential of NUS; and
- indicate factors hampering VCD of NUS and thus putting the objectives, the promotion of biodiversity and pro-poor growth at risk.

Taking into account the challenges in conserving agro-biodiversity and fostering pro-poor growth through the promotion of value chains of NUS, GFU intends to give guidance to non-governmental organizations (NGOs), development organizations, assistance agencies and other parties interested in NUS-VCD.

Structure of the guidelines

The present guidelines are meant to facilitate the development of viable strategies by:

- giving a brief introduction to basic concepts (Chapter 2);
- introducing the strategic cycle for participatory VCD (Chapter 3); and
- taking stock of methodologies and tools for building structures and capacities for sustainable NUS-VCD (Chapter 4).

Building on these guiding principles and possible approaches to NUS-VCD, the last two chapters look at the questions of how far and with what preconditions NUS-VCD can contribute to the main objectives of biodiversity conservation and pro-poor growth by:

[1] These case studies will be published on the GFU Web site during 2008. See www.underutilized-species.org

- discussing social, environmental and economic impacts (Chapter 5); and
- summarizing lessons learnt from case studies and other field experience (Chapter 6).

Aiming at providing interested readers with more practice-oriented guidance than theoretical discourse, academic explanations will be kept short. For those interested in theories, every section is complemented by recommendations for further reading.

Introduction

- **Value chain development of neglected and underutilized species – striving for social, environmental and economic impacts**
  - *Definition of value chains*
  - *Objectives and impacts of NUS-VCD*
  - *Challenges in NUS-VCD*
- **Promoting value chains of neglected and underutilized species – drivers fostering and hampering the utilization of biodiversity**
  - *Particularities of NUS-VCs and similarities between NUS and other commodity VCs*

1.1 Value chain development of neglected and underutilized species – striving for social, environmental and economic impacts

In many traditional farming systems worldwide, agro-biodiversity plays a fundamental role in the livelihoods of the rural poor. It is widely recognized that embedding use of neglected and underutilized species (NUS) into traditional household systems of the resource-poor—be they small-scale farmers or collectors—holds significant potential for:

- improving food security and achieving more balanced nutrition for the rural and urban poor (social benefits);
- conserving biodiversity and stabilizing agro-ecosystems (environmental benefits); as well as
- generating income for the rural poor and creating employment along the value chain (VC)(economic benefits).

To better realize these prospects, value chain development (VCD) has increasingly gained attention in recent years as a tool (among others) for linking supply capacities to market opportunities.

Definition of value chains

The VC describes the sequence of activities from producing raw material and transforming the same into products that can be purchased by final consumers.

As such, the VC methodology is a conceptual means for characterizing the different stages that a given product experiences from initial product conception, to the provision of inputs, to primary production, to intermediary trade, to processing, to retail marketing and to final consumption, including the identification of the value added at each node of the VC.

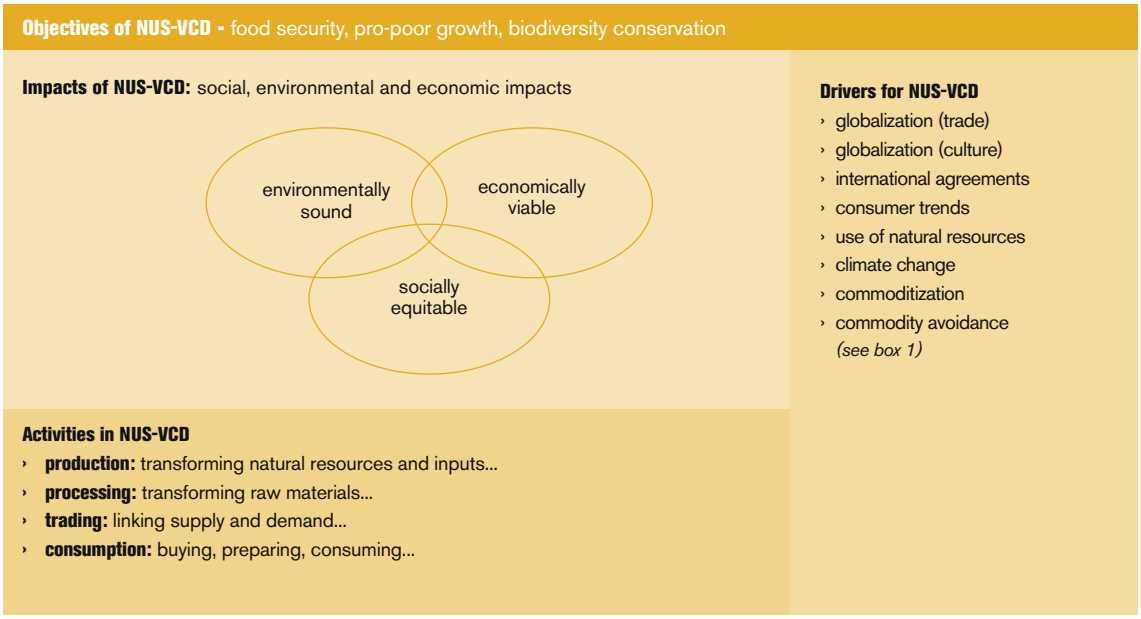
1.2 Objectives and impacts of NUS-VCD

The promotion of NUS-VCs contributes to achieving the Millennium Development Goals (MDGs), in particular with regard to eradicating extreme poverty and hunger (MDG1) and ensuring environmental sustainability (MDG7), as well as promoting gender equality and empowering women (MDG3), reducing child mortality (MDG4), improving maternal health (MDG5) and developing a global partnership for development (MDG8). Figure 1 illustrates the interdependencies among the respective social, environmental and economic impacts of VCD of NUS, namely:

- social equitability depends on environmental sustainability and the economic situation of the resource-poor, as described in the definition of food security:
  "Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life."[2]
  Furthermore, NUS-VCD can contribute to preserving the cultural identity of local communities;
- economic viability depends on environmental sustainability and social equitability since, in the long run, income from NUS-VCs can only be generated or increased where the natural resources sustainably carry yields and where the returns support the livelihoods of the resource-poor population; and
- environmental sustainability in turn depends on economic viability and social equitability, since viable market access and the income generated from the commercialization of NUS can, if well communicated, become an incentive for protecting natural resources, while, in the ideal case, assuring livelihoods for future generations.

[2] Definition of the Global Forum on Food Security and Nutrition Policies and Strategies. http://km.fao.org/fsn/resources/glossary.html

Figure 1. Value Chain Development of neglected and underutilized species
- striving for social, environmental and economic impacts



It should be kept in mind, however, that striving for literally balanced environmental, social and economic impacts means to aspire to probably the impossible. Innate antagonisms and their relevance for NUS-VCD will be further discussed in Chapter 5.

Challenges in NUS-VCD

However, the potential of VCD of NUS is still largely untapped for various reasons:

- low competitiveness of actors along the entire VC, from input suppliers and producers up to traders, processors and retailers;
- limited knowledge of private and public service providers concerning appropriate technology packages to promote NUS;
- inappropriate rural development policies and programmes focusing on a limited number of commodities or cash crops; and
- widespread mistrust between VC operators, as well as between private and public stakeholders.

To unlock the potential of NUS, VCD aims at addressing these shortcomings by facilitating the development of enabling framework conditions, VC-oriented services and sustainable business activities and relations along the VC, based on trust and long-term linkages between the different actors.

1.3 Promoting value chains of NUS
– drivers fostering and hampering the utilization of biodiversity

As an essential source for food, feed, natural medicine, clothing, housing, tools and many other purposes, biodiversity is an indispensable element of the livelihood of people worldwide. However, global food security increasingly depends on narrowing ranges of animal and plant species. Today, only about 30 plant species out of the global agricultural biodiversity are used to meet 95% of the world's food energy needs (FAO 1996; Wilson 1992; Myers 1983, cited by Padulosi *et al.* 1999). In the end, food supply is provided on average by a mere 100 species, leaving the wealth of plant genetic resources lying idle (Prescott-Allen and Prescott-Allen 1990), resources that could contribute to increasing food security and improving nutrition, generating income and reducing poverty, as well as furthering the sustainable use of natural resources.

The ever-increasing importance of an extremely small number of commodities alongside ever-decreasing biodiversity worldwide was driven by the concept of 'major crops' that were perceived to be superior to those of NUS, the so called 'minor species', in terms of:

- **product properties:** quality, physical appearance, taste, nutritional value, perishability or storability, processability;
- **production, handling and processing properties:** yielding capacities, cultivation, harvesting, transport, storage and processing technologies;
- **marketing properties:** consumer preferences and trends, distribution technologies, trade concentration;
- **environmental properties:** adaptability to different and/or changing environmental conditions (e.g. climate change);
- **research and development (R&D) capacities:** potential uses, production and processing technologies, and potential for innovation; and
- **globalization effects:** trade liberalization and continuing approximation of cultures across continents.

"Yet the narrow agricultural portfolio of today's agriculture raises serious questions on how effectively major crops alone can contribute towards food security, poverty alleviation, and ecosystem conservation as we become more and more aware of the fact that diversification of crops at all levels and in all types of agro-systems is the most crucial element for sustainability (Collins and Hawtin 1998). Emerging opportunities over the last few years for 'minor' crops (particularly those underutilized or neglected) signal a new attention of the public opinion on biodiversity and its sustainable use along with an increasing interest of the public and private sector towards 'new' crops, 'new' uses and new markets." (Padulosi *et al.* 1999)

Nonetheless, the market potential of many NUS has so far been little translated into broader approaches to VCD for biodiversity conservation and pro-poor growth. This is mainly due to a lack of knowledge of the potential uses, and hence value, of these plants to producers, the intermediary stages of the VC and consumers, not only as food and feed, but also for other uses, including processed products and the utilization of by-products.

"However, coupled with such a market-based approach appears the threat of a sudden surge in market demand for a product, which in turn may lead to indiscriminate harvesting practices and overexploitation of natural resources (IPGRI 2003). There are many examples in which certain species collected from the forest have almost reached extinction due to market forces. This stresses the importance of a holistic approach that brings these species under cultivation and at the same [time] re-governs the market for these species in order to bring sustainable benefits to the poor communities maintaining and utilizing them." (Kruijssen and Mysore, unpublished)

These developments shed new light on drivers fostering and hampering the utilization of NUS, and this is in addition to the effects of developments challenging access to markets for the resource-poor, such as the liberalization of markets and prices, the retreat of the government sector from support and intervention in agriculture, and the rise of market power on the retail side of the marketing chain (supermarkets).

As explained by Kruijssen and Mysore (unpublished), opportunities can change into threats where inappropriate promotion strategies or market forces that are not embedded in sustainability strategies override the balance of social, environmental and economic benefits. **Vice versa, threats to biodiversity and pro-poor growth may transform into opportunities, provided realistic supply, and especially market potentials, can be identified and realized in a sustainable way.** This ambiguity of driving forces apt to either foster or hamper the development of NUS VCs is illustrated in Box 1.

Box 1. Ambiguity of selected drivers providing opportunities or posing challenges to NUS-VCD for pro-poor growth and biodiversity conservation

Drivers…	…as opportunities	…as challenges
Globalization (trade)	access to new export markets	increased competition through imports and substitute products†
Globalization (culture)	exposure to global diet diversity (e.g. tourism, international cuisine)	decreasing diet-variety (homogenization of consumer trends)
International agreements	promotion of the conservation or utilization of NUS (e.g. CBD)	increasing market access requirements (standards; e.g. WTO)
Urbanization	rising incomes and increasing demand for convenience food	disappearance of indigenous knowledge (e.g. uses, recipes)
Consumer trends (local, global)	changing consumer attitudes toward health and environment	increasing demand for global brands
Sustained use of natural resources	increasing awareness on the need for diversified cropping systems	possible negligence of economic parameters (cost-benefit relation)
Climate change	rising need for climate-tolerant species/ adaptability to locations	increasing risk of crop failures due to extreme weather conditions
Commoditization of NUS	growing shares of NUS in local, regional and international markets	risk of commoditization of NUS resulting in for example: ■ reduction of biodiversity in smallholder farming systems ■ marginalization of resource-poor smallholder farmers ■ unsustainable collection and production practices ■ overexploitation of scarce resources
Commodity avoidance‡	research on commodity substitutes (e.g. NUS) in food formulations	
Bio-energy production	emerging commercial interest in bio-energy NUS	
Poverty alleviation	alternative source of income for smallholder farmers	
Food security/improved nutrition	access to food and enriched food basket for rural and urban poor	

† Substitute product: a product is called a substitute for another product, when either can be used or consumed instead of the other without major differences in the degree of satisfaction of the user or consumer.

‡ see Halliday (2007).

These examples illustrate, that the same drivers might foster or hamper the development of NUS VCs. As a consequence, the challenge is to identify and realize strategies for NUS-VCD to transform drivers into opportunities.

Particularities of NUS-VCs and similarities between NUS and other commodity VCs

If compared with other commodities, most of the drivers, whether they offer opportunities or constitute challenges, apply as well to staple crops and high value commodities (e.g. horticultural products) as to NUS. Hence, the often-expressed perception that it is more difficult to promote NUS-VCs cannot be supported as a general rule. By virtue of their special characteristics (e.g. special and multiple uses, high adaptability to climate and marginal conditions, use of indigenous knowledge, traditional uses, and global market trends), NUS may in many instances even offer better opportunities than mass products, provided supply capacities are linked to market opportunities in an appropriate and professional approach.

Likewise, factors hampering the progress of NUS-VCs also impede the promotion of other commodity chains. Such factors include:

- risk-adversity in the resource-poor;
- insufficient knowledge of markets;
- fragmented supply-to-market linkages;
- prevailing mistrust between VC actors;
- lack of consumer awareness and consumer education;
- inefficient and insufficient offer of non-financial and financial services; and
- inadequate legal, infrastructural and administrative frameworks.

Consequently, whether promoting NUS-VCs or other commodity chains, approaches cannot be generalized but have to be assessed and formulated on a case-by-case basis. Since there is no ‘one size fits all’ solution, successful NUS-VCD depends on the expertise of the private and public stakeholders involved and their ability to realistically assess opportunities and threats and to derive appropriate and realizable strategies for sustainable NUS-VCD on a case-by-case basis.

Basic concepts for value chain development of neglected and underutilized species

With a view to creating a common understanding of important concepts relevant to NUS-VCD, this chapter gives a brief introduction to:

- **Biodiversity conservation – maintaining NUS**
- **Pro-poor growth – combining VCD and the Sustainable Livelihood Framework**
- **VCD – applying a holistic approach for market access**
- **Sustainable development – building structures and developing capacities for NUS-VCD**

2.1 Biodiversity conservation – maintaining NUS

The UN Convention on Biological Diversity (CBD) defines biodiversity as follows:

> **"Biodiversity—short for biological diversity—means the diversity of life in all its forms – the diversity of species, of genetic variations within one species, and of ecosystems. The importance of biological diversity to human society is hard to overstate. An estimated 40 per cent of the global economy is based on biological products and processes. Poor people, especially those living in areas of low agricultural productivity, depend especially heavily on the genetic diversity of the environment."**

For many NUS—being threatened by neglect and even facing extinction—the conservation of biodiversity has become a major concern for obvious environmental, social and economic reasons. Trying to define NUS, the editors of the Strategic Framework for Underutilized Plant Species come to the conclusion that

> **"It is difficult to define just what qualifies as an 'underutilized species'. Terms such as 'underutilized', 'neglected', 'orphan', 'minor', 'promising', 'niche' and 'traditional' are often used interchangeably to characterize the range of plant species...".** (Jaenicke and Hoeschle-Zeledon 2006)

Finally, they chose the following definition:

> **NUS are "those species with under-exploited potential for contributing to food security, health (nutritional/ medicinal), income generation, and environmental services."** (Jaenicke and Hoeschle-Zeledon 2006)

> **"An additional common feature is that most of these crops are still selected, adapted and multiplied by farmers in marginal environments of developing economies. Thus underutilized crops have the potential to contribute not merely to agricultural biodiversity but most importantly to the livelihood of the poor. Marketing development of underutilized plant species is one way to increase social welfare by generating income for the local producers and chain actors and by promoting the sustained use and conservation of agricultural biodiversity."** (Horna *et al.* 2007)

In summary, the GFU identifies the following common features of underutilized species (Padulosi *et al.* 2007):

- *important* in local consumption and production systems;
- *highly adapted* to agro-ecological niches and marginal areas;
- *ignored* by policy-makers and excluded from R&D agendas;
- *represented* by wild species, ecotypes and landraces;
- *cultivated* and utilized drawing on indigenous knowledge (IK);
- *very little represented* in *ex situ* gene banks; and
- *characterized* by fragile or non-existent seed supply systems.

Furthermore, Gruere *et al.* (2007) summarize the common features of NUS as follows:

- NUS are locally abundant in developing countries but globally rare;
- scientific information and knowledge about NUS are scant; and
- the current use of NUS is limited relative to their economic potential.

The main common characteristic of NUS is that their commercial potential and the knowledge and technologies on how to utilize this potential in a competitive environment are ignored:

- **by research:** overlooking the need for science-based knowledge development, e.g. into traditional uses and indigenous knowledge, development of new products and appropriate technologies;
- **by policy-makers:** failing to orient sector development policies towards biodiversity conservation, and poverty reduction policies towards the development of the economic potential of NUS for the poor;
- **by public and private stakeholders:** dismissing conservation efforts as a non-economic task predominantly postulated by environmentalists (green movement); and last, but not least, and
- **by VC operators (producers, processors, traders, consumers):** failing to recognizing the commercial potential, and hence the possible economic benefits.

As a consequence, the potential of NUS to contribute to agro-biodiversity conservation, food security, nutrition and health, as well as poverty alleviation, is not tapped.

With regard to approaches towards VCD, it is also important to distinguish the two methods of conservation of NUS noted in the CBD:

- ***ex situ* conservation**:
  A conservation method that entails the removal of germplasm resources (seed, pollen, sperm, individual organisms) from their original habitat or natural environment with the aim to keeping components of biodiversity alive outside their original habitat or natural environment.
  In terms of VCD, *ex situ* conservation represents a service to be rendered by public or private Business Development Service (BDS) providers.

- ***in situ* conservation:**
  A conservation method that attempts to preserve the genetic integrity of gene resources by conserving them within the evolutionary dynamic ecosystems of the original habitat (i.e. on-farm, in-forest).
  In terms of VCD, *in situ* conservation represents a VC-activity (or VC-function) realized by VC operators (input suppliers such as nurseries or farmers).

"In recent years, a paradigm shift has taken place in conservation policies, from strictly *ex situ* conservation towards more holistic approaches to biodiversity utilization, management and use, including both *in situ* and *ex situ* approaches." (Kruijssen and Mysore, unpublished)

Even if *in situ* biodiversity conservation (on-farm production, in-forest collection) represents one of the major objectives of promoting VCs of NUS, this has to be complemented by *ex situ* approaches of R&D, including the establishment of gene banks to assure sustainable access to plant genetic resources beyond the possibilities and limitations of commercial approaches.

With regard to on-farm agro-biodiversity conservation, Kruijssen and Mysore (unpublished) leave the following concern for consideration:

"Although, the approach is considered to have high potential to improve the well-being of the rural poor, a critical analysis is needed of the trade-off between biodiversity and poverty reduction."

FURTHER READING

CBD [UN Convention on Biological Diversity]. No date. Biodiversity Glossary. Available online at: www.cbd.int/cepa/toolkit/html/resources/FD/FDF8CE88-237B-46EE-BB5F-42304D735C23/Biodiversity%20Glossary.pdf

Jaenicke, H. & Hoeschle-Zeledon, I. (editors). 2006. Strategic framework for underutilized plant species research and development, with special reference to Asia and the Pacific, and to Sub-Saharan Africa. International Centre for Underutilised Crops (ICUC), Colombo, Sri Lanka, and Global Facilitation Unit for Underutilized Species (GFU), Rome, Italy. Available online at: www.underutilized-species.org /documents/PUBLICATIONS/gfu_icuc_strategic_framework.pdf

Kruijssen, F. & Mysore, S. (unpublished). Markets for agrobiodiversity: exploring the utilization of *Garcinia* species in South-India. In preparation for the GFU Web site: www.underutilized-species.org

Padulosi, S., Hodgkin, T., Williams, J.T. & Haq, N. 2002. Underutilized crops: trends, challenges and opportunities in the 21st Century. pp. 323–338, *in:* J.M.M. Engels *et al.* (editors). *Managing plant genetic resources*. CABI-IPGRI, UK and Rome. Available online at www.ipgri.cgiar.org/nus/docs/sat21.doc

Padulosi, S., Hoeschle-Zeledon, I. & Bordoni. P. 2007. Minor crops and underutilized species: Lessons and prospects. *In:* N. Maxted, E. Dulloo, B.V. Ford-Lloyd, J. Iriondo, S.P. Kell and J. Turok (editors). *Crop wild relative conservation and use.* CAB International, Wallingford, UK. E-book available to libraries via Netlibrary and Ebrary.

RELEVANT WEB SITES

CBD – Convention on Biological Diversity
www.cbd.int/convention/about.shtml

GreenFacts – Scientific Facts on Biodiversity & Human Well-being
www.greenfacts.org

GFU – Global Facilitation Unit for Underutilized Species
www.underutilized-species.org/about_GFU.asp

GFU – Funding and Assistance agencies
www.underutilized-species.org/donors/about_donor.asp

GTZ – Deutsche Gesellschaft fuer Technische Zusammenarbeit – Biodiversity
www.gtz.de/de/themen/umwelt-infrastruktur/18459.htme

2.2 Pro-poor growth
– combining VCD and the Sustainable Livelihood Framework

> **"The case of rural development is easy to make: the large majority of the poor live in the rural areas of the developing world. Even with urbanization, this reality will not change for at least another 20 years. Although, some of the rural poor will be helped by transfers from cities, for most poor households any improvement in their incomes will depend on generating more and better jobs in rural areas."** (Hazell *et al.* 2007)

Poverty is the result of diverse weaknesses and limitations at many levels: individual (e.g. production know-how, market orientation, risk adversity); collective (e.g. information and knowledge sharing, joint action); institutional (e.g. access to non-financial and financial services); political and administrative (e.g. policies, legislation, land tenure rights and access to infrastructure); and socio-cultural (e.g. mistrust, networks and exclusion).

2.2.1 Pro-poor growth

Pro-poor growth is a strategic approach that aims at deriving benefits from economic growth for reducing poverty through the development of the economic potential of the resource poor. In other words, the objective of pro-poor growth is to enhance the ability of the poor to participate in, contribute to and benefit from economic growth (OECD 2006). Pro-Poor Growth aims at eradicating extreme poverty and hunger as laid down in the MDGs, which set a target of halving the proportion of people living on less than a dollar a day and those who suffer from hunger (MDG1).

Although it is common understanding that NUS could contribute to pro-poor growth, it will be a major challenge to build the structures and develop the capacities necessary to enable resource-poor farmers to better integrate into VCs. In general, the constraints and potential solutions are known,

> **"but no widely agreed-upon strategy for achieving sustainable links between smallholder farmers and high value agricultural product markets yet exists."** (GFAR 2005)

However, it will be essential to shift from the currently predominant environmental (conservation) and social (poverty alleviation) approaches, towards developing structures and capacities for business solutions appropriate for benefiting the poor in a sustainable manner while maintaining agro-biodiversity. This shift implies not only a change of methodologies and instruments, but even more so a change in the capacity profile and attitudes of private and public stakeholders involved in promoting NUS-VCD (see Section 4.2).

Understanding that VCD is a business-oriented approach leads to the question of how far can the poorest of the poor be integrated in a sustainable way without external support. Due to their pronounced vulnerability, the resource-poor are generally risk averse. Consequently, they usually avoid taking decisions that might tie up labour, land or funds desperately needed for securing a basic livelihood. Furthermore, unit input procurement and produce marketing costs for smallholder farming are usually higher than for larger farms, due to the small quantities handled. Small-scale farmers are also often not capable of adopting new technologies that require higher levels of education, or investment in mechanization.

Furthermore, access to extension and training services and credit is difficult in rural areas, especially for the resource poor. In countries where the growth of supermarket chains leads to ever-increasing concentration of negotiation power on the retail side, smallholders may no longer be capable of meeting the standards for quality, food safety, consistency and timeliness of supplies, as well as of responding to rapid

changes in consumer preferences. All these issues have to be addressed when conceiving projects aimed at facilitating the integration of small-scale farmers and collectors into NUS-VCs.

When it comes to promoting perennial crops, the case becomes even more difficult, since return on investment may take several years. In such a context, it will be very difficult to change attitudes from subsistence farming to understanding and managing 'NUS-farming as a business'. Consequently, it will be challenging, and sometimes even irresponsible, for the development side (research and extension, NGOs and other development partners) aiming at facilitating NUS-VCD, to recommend that poor subsistence farmers invest labour, land or funds into new ventures.

Consequently, the integration of the poor into NUS-VCs has to be based on an assessment of concrete benefits for the livelihood of the target population, as well as on the economic viability and the prospects for the sustainability of the VC project.

The benefits for the farmers or collectors can be deduced from an assessment of the opportunity costs[3] of the current farming system compared with the proposed new farming system, including the selected NUS. The resulting commercial value or possible other benefits (food security, use of by-products, etc.) can then be used to convince the farmers or collectors to embark on that venture. Clear benefits that could influence such a business decision are often pure economic benefits only on the surface. More broadly they might be perceived as social benefits, since income generated would translate into better access to education and health services, improved food security and more balanced diets. VC facilitators should be aware of these different perceptions, identify concrete benefits and argue accordingly in their VC promotion approaches.

Furthermore, the successful integration of poor farmers into NUS-VCs will depend on identifying opinion leaders within the poor communities, capable and willing to commit resources to the proposed venture and thus, by creating a success story, motivating other community members and neighbouring communities to follow suite. This phenomenon, called 'diffusion of innovations' (Rogers 1962; 2003), is hence not only valid for the richer and better educated parts of population, as often believed, but is equally applicable to ways of introducing innovations to the poor.

Enabling the resource poor to seize existing opportunities will depend to a large extent on the availability of and access to competent, affordable and accountable non-financial and financial services, as well as a political, legal and administrative environment providing conducive framework conditions (infrastructure, incentives and good governance). Methodologies and instruments for improving service provision and framework conditions for promoting NUS-VCD will be discussed in detail in Chapter 4.

2.2.2 The Sustainable Livelihood Framework

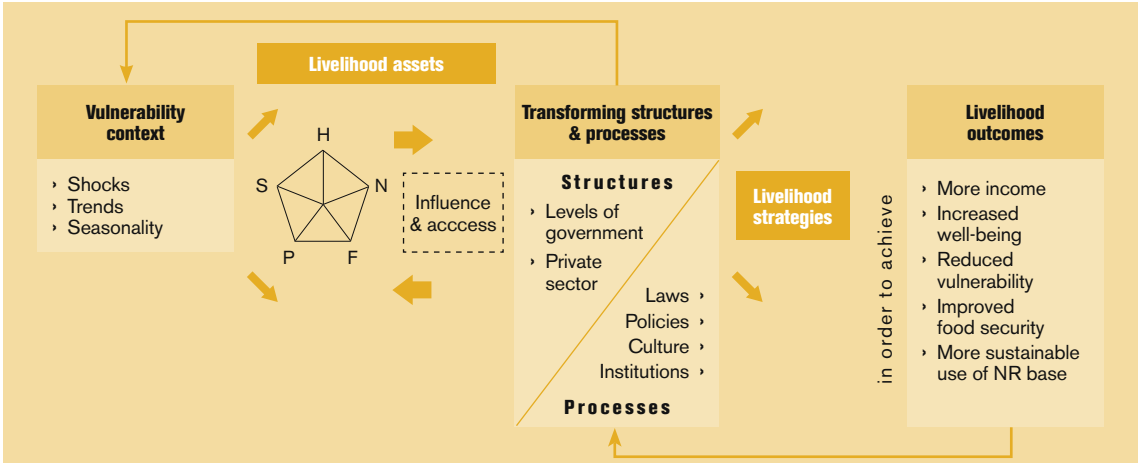
The Sustainable Livelihood Framework developed by the UK Department for International Development (DFID) serves as an instrument for analysing and describing the interlinked causes for poverty. Based on this analysis, the framework facilitates the identification of entry points and strategies to improve livelihood outcomes as a means of alleviating poverty. Combined with participatory analysis at local level, this model assists in structuring the findings, identifying entry points for upgrading the self-help potential and for external interventions.

[3] Opportunity cost is the cost of something in terms of an opportunity forgone (and the benefits which could be received from that opportunity), or the most valuable forgone alternative (or highest-valued option forgone), i.e. the second-best alternative. In the case of integrating trading tasks into smallholder (individually or collectively organized) functions, the opportunity cost is the amount the farmer(s) could have received by using their key competencies (production) and their perhaps limited labour and financial capacities for farming instead of venturing into trading, where lack of experience and competence may result in higher transaction costs.

Within the Sustainable Livelihood Framework (Figure 2A), the so-called 'asset pentagon' summarizes the human, natural, financial, physical and social capital available or accessible to households or communities by assessing resources the poor have at their disposal, and illustrating inter-relationships between the different assets. Differently shaped pentagons (Figure 2B) reflect different levels of availability and/or access to human, natural, financial, physical and social assets.

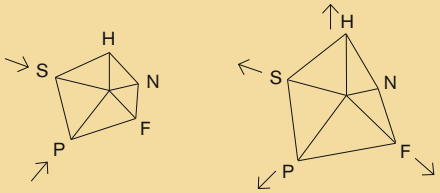
> **"The shape of the pentagon can be used to show schematically the variation in people's access to assets. The idea is that the centre point of the pentagon, where the lines meet, represents zero access to assets while the outer perimeter represents maximum access to assets. On this basis different shaped pentagons can be drawn for different communities or social groups within communities."** (DFID 2001, Section 2.3)

Figure 2. Sustainable Livelihood Framework



Overview of the Sustainable Livelihoods Framework:
"The left hand section of the figure shows how the **vulnerability context** impacts on the **livelihood assets** of ... people – denoted by a pentagon. Livelihood **assets** are also influenced by outside **policies, institutions** and **processes**. **Livelihood strategies** of different categories of households are shaped by their **asset base** and by the **policy and institutional context** in which they live. **Livelihood outcomes** of different types of households are influenced by the **vulnerability context** – people's exposure to unexpected shocks – and their ability to withstand the shocks, which depends on their **asset** base" (FAO 2005).

Examples of different shapes of asset pentagons:



Key - H: Human Capital - N: Natural Capital - F: Financial Capital - S: Social Capital - P: Physical Capital

Source: DFID (2001)

The overall livelihood assets as derived from the assets pentagon facilitate understanding the vulnerability context and identifying entry points for improving livelihood strategies as a means to alleviating poverty. In such a way, they also facilitate identifying strategies for integrating resource-poor populations into VCs.

The Sustainable Livelihood Framework can serve as a tool for the VC analysis and the development of strategies for NUS-VCD, in particular with regard to gearing activities and impacts not only to biodiversity conservation and economic sustainability, but also to poverty alleviation.

More details on the Sustainable Livelihood Framework concept and how to use it are explained in several Guidance Sheets (see further readings). A case study on how to integrate the Sustainable Livelihood Framework into the approach towards NUS-VCD can be drawn from Giuliani (2007; see Box 2).

Box 2. Livelihood surveys as an integral part of VC analysis: Case study on the integration of the Sustainable Livelihood Framework into VC analysis

The VC analysis led to the identification of four general categories of VC operators:

- collectors – individuals or groups, collecting wild species from state and private lands;
- growers – small-scale farmers, cultivating and harvesting the selected species on their own land;
- small-scale processors – transforming raw material as a service for growers or of purchased raw material at own risk; and
- traders – intermediaries (middlemen), wholesalers and retailers, buying and selling at different stages of the VC.

To assess the impact of VCD on livelihoods by category of VC operator, the following approach was applied:

- assessment of livelihood assets of all categories of chain actors according to the Sustainable Livelihood Framework;
- identification of asset-related factors that challenge or support NUS-VCD at every stage of the VC;
- evaluation of the interrelations between the natural, physical, human, social and financial assets;
- derivation of the shape of the assets pentagon for each category of VC operator;
- interpretation of the relation between causes and effects leading to the respective shapes of the asset pentagons;
- integration of the results into the VC analysis; and
- derivation of possible solutions aimed at developing the VC.

Reasons for the integration of the Sustainable Livelihood Framework into the set of tools for VC analysis were:

- the Framework provides useful information on challenges and opportunities for integrating resource-poor into VCD; and
- the market perspective, not sufficiently catered for in the Framework, has to be provided by other VC analysis tools.

Source: Giuliani (2007)

FURTHER READING

Altenburg, T. 2007. Donor approaches to supporting pro-poor value chains. Report presented to the Donor Committee for Enterprise Development. Available online at: www.sedonors.org/resources/item.asp?resourceid=386

DFID [Department for International Development]. 2001. Sustainable Livelihood Guidance Sheets. DFID, London, UK. Available online at: www.livelihoods.org/info/info_guidancesheets.html#1

FAO. 2005. Rapid Guide for Missions: Analysing local institutions and livelihoods - Guidelines. Prepared by A.S. Carloni and E. Crowley. *[FAO] Institutions for Rural Development,* No. 1. Available at: ftp://ftp.fao.org/docrep/fao/008/a0273e/a0273e00.pdf

Giuliani, A. 2007. Developing markets for agrobiodiversity – Securing livelihoods in dryland areas. Bioversity International, Rome, Italy. Available online at: http://www.underutilized-species.org/record_details.asp?id=891

Grimm, M. & Guenther, I. 2004. How to achieve pro-poor growth in a poor economy: The case of Burkina Faso. Available online at: www.diw.de/documents/dokumentenarchiv/17/41790/ppg_burkina_summary.pdf

Hazell, P., Poulton, C., Wiggins, S. & Dorward, A. 2007. The future of small farms for poverty reduction and growth. International Food Policy Research Institute 2020 Discussion Paper, No. 42. Available online at: www.ifpri.org/2020/dp/vp42.pdf

M4P (editor). 2004. Promoting Market Opportunities at the Base of the Pyramid (BOP). Making Markets Work Better for the Poor (M4P). . Available online at: www.markets4poor.org/

OECD [Organisation for Economic Co-operation and Development]. 2001. The DAC Guidelines – Poverty Reduction. OECD, Paris, France. Available online at: www.oecd.org/dataoecd/47/14/2672735.pdf

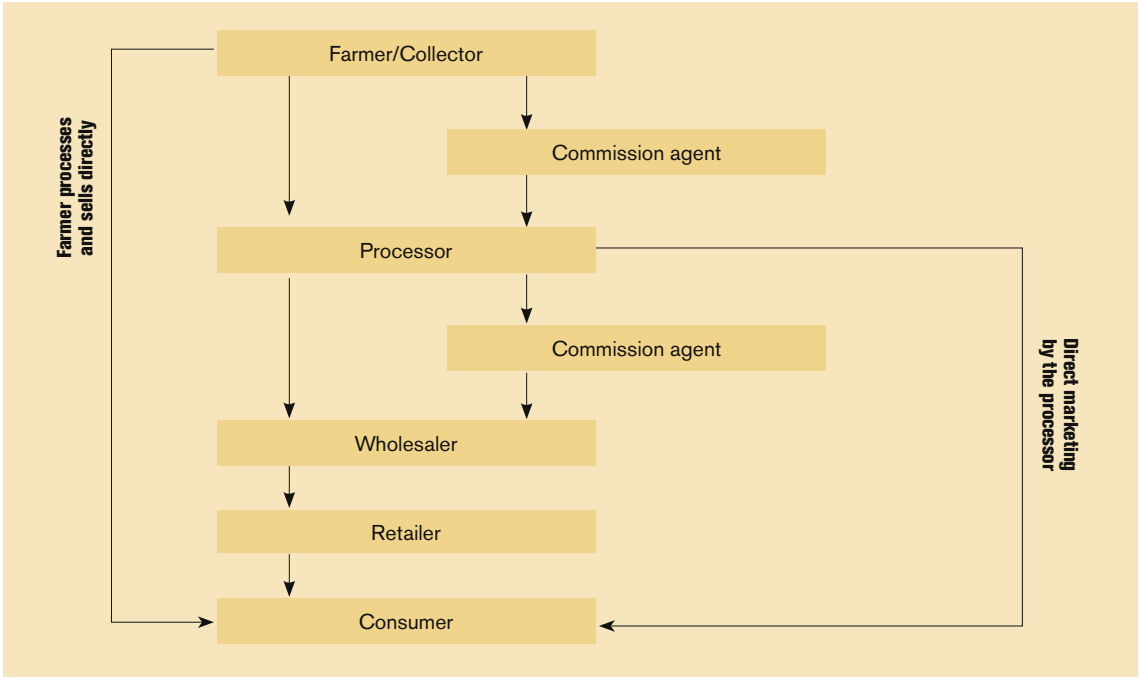
OECD. 2006. Promoting Pro-Poor Growth – Agriculture. OECD, Paris, France. Available online at: www.donorplatform.org/component/option,com_docman/task,doc_details/gid,375/Itemid,98/

SEEP Network. 2006. Value Chain Development and the Poor. Progress Note No. 16, October 2006. A publication of The Value Chain and Poor Working Group. Available online at: www.seepnetwork.org/content/library/detail/4695

2.3 Value chain development
– applying a holistic approach for market access

The definition used in these guidelines describes the VC as a conceptual means for illustrating the different stages that a given product traverses from the provision of inputs, to primary production, to intermediary trade, to processing, to retail marketing, up to final consumption (Figure 3 shows a generic VC map). The VC therefore describes the sequence of activities realized to produce raw materials and transform the same into products that can be purchased by a final consumer. To that effect, **the VC approach serves as an instrument for facilitating market access for producers.**

Figure 3. Generic value chain map



Source: Daniel and Dudharde (2007)

VCD is a business-oriented approach that aims to capture the best value at all stages of production, processing and trading, from farmers through traders, processors and retailers, to the final consumer. A VC is therefore characterized by:

- the sequence of processes from the provision of specific inputs to primary production, transformation, marketing and to final consumption **(VC functions)**; and
- the linkages and coordination between the producers, processors, traders and distributors of a particular product **(VC operators).**

As a general rule, VCs are organized to meet specific marketing objectives, i.e. to satisfy consumers' needs. VCs exist where operators share a common vision and goals for managing VC processes, allowing for mutual decision-making on how to link production with markets while sharing risks and benefits. In the ideal case, VCD therefore facilitates communication and cooperative intelligence: costing, marketing and information are shared to enhance the VC's competitiveness and profits.

Having this in mind, the shared goal of operators in a VC is to strengthen the competitiveness of the final product in specific target markets with a view to increase the value added and income at every stage of the VC.

To achieve this, it is necessary to improve the efficiency and effectiveness of the current, too often uneconomic, production-to-market linkages, through:

- orienting supply decisions to market opportunities (demand as starting point for VCD);
- overcoming highly fragmented marketing relations/business linkages;
- building trust among VC operators;
- balancing asymmetric distribution of information and power;
- improving technologies and know-how;
- improving access to services (information, know-how, technologies, finances, etc.); and
- creating an enabling environment (policies, legislation, administrative procedures, etc.);

thereby:

- increasing productivity, reducing wastage rates and assuring product quality and food safety from production and post-harvest through to the consumer's table;
- reducing currently high transaction costs (costs for market research, transport and logistics for distributing goods from farm to consumer); and
- creating an environment conducive to changing attitudes (trust) and giving incentives for investing into necessary innovation.

In aiming to increase the competitiveness of the final product—as an absolute condition for sustainable market access—effective and efficient communication and concerted actions are crucial. The better all VC partners cooperate, the greater will be the value generated for the individual operator at every stage of the VC.

However, the reality is different: supply-demand nodes are usually highly inefficient due to fragmented linkages between the operators along the production-to-market chain. Business relationships are characterized by mistrust and ignorance of the performance and capacities of the upstream and downstream partners in the VC **(vertical linkages)**: producers do not have good relationships with intermediaries, who do not link up efficiently with traders, whose supplies to wholesalers or processors are neither consistent nor trustworthy, and none of them disposing of continuous and reliable information on the needs of consumers. In such an environment, it is difficult to build sustainable supply-to-market linkages that facilitate reliable and long-term market access for all partners in the VC, including small-scale producers.

The same applies for cooperation at specific nodes of the VC, where collective action in community-based groups or farmer groups, cooperatives or business associations could play an important role as platforms for joint learning, common marketing and negotiation with customers, advocacy and similar activities **(horizontal cooperation)**. However, the motivation for joining forces for commercial activities is often weak due to experiences with cooperative movements in many countries, where the past was characterized by top-down approaches to group, cooperative and association development, as well as the predominantly social character of most community-based groups.

Even worse, in many places, relations between private and public stakeholders are also characterized by mutual mistrust, resulting in attitudes impeding joint approaches to seizing the economic potential of NUS-VCD for agro-biodiversity conservation and poverty alleviation.

This brief introduction already illustrates that the VC is a very complex system of inter-related linkages and structures involving:

- VC operators – individuals and their networks (micro-level);
- VC supporters – private and public support services (meso-level); and
- VC enablers – macro-economic framework conditions (macro-level);

all of which are embedded into

- VC attitudes – socio-economic and socio-cultural conditions (meta-level).

Box 3 gives an ideal-typical–if not to say simplistic–view of the complex VC system. It clearly shows that the better all stakeholders communicate and cooperate, and the better the structures operate, then the higher the levels of competitiveness of the final product (output of the VC system) that can be achieved. Hereafter, this system will be referred to as the 'Value Chain System for Competitiveness'.

As the schema illustrates, the objective of VCD is to a large extent about building structures to facilitate effective and efficient flows of goods, payments and information that assure:

- sustainable access to markets for the upstream partners in the VC (primarily producers and upstream intermediaries); and
- sustainable access to fresh, semi-processed and processed products at the downstream end of the VC (processors, retailers and, in particular, the final consumers).

The VC System for Competitiveness perfectly illustrates the requirements of a complex analytical and strategic framework necessary to achieve the objectives of NUS-VCD, namely food security, pro-poor growth and biodiversity conservation.

For more complete and comprehensive explanations on the VC approach in general, the interested reader is referred to the publications and Web sites listed in Chapter 3. For more information on methodologies and instruments for VCD, see Chapter 4.

Box 3. The Value Chain System for Competitiveness

VC Operators	Input Suppliers	Producers, Farmers	Brokers, Middlemen	Processors, Exporters	Wholesalers	Retailers, Caterers	Consumers	
VC Interactions	flow of goods → flow of payments ← flow of information ↔							micro-level
VC Supporters	private and public service providers offering VC-oriented services: research and development, extension, training, advice on development of good agricultural/good handling/good manufacturing practices, implementation of marketing surveys, access to marketing information and other non-financial and financial services, etc.							meso-level
VC Enablers	framework conditions at national, regional, community levels enabling value chain development for biodiversity conservation and pro-poor growth: local and regional development policies, sector policies, legislature, regulations, directives and by-laws, social infrastructure (education, health, social security, etc.), economic infrastructure (road and communication network, electricity, water etc.), etc.							macro-level
VC Attitudes	social norms, social structures and cultural factors influencing business relationships, private-public sector dialogue, cooperation and trust							meta-level

Source: Will (2006b)

2.4 Sustainable development
– building structures and developing capacities for NUS-VCD

It is commonly accepted that sustainable development builds on two pillars, namely structure building and capacity development.

2.4.1 Structure building

As can be concluded from the VC System for Competitiveness (Box 3), structure building in the context of VCD has four levels:

- structures at the level of VC operators (micro-level), involving input suppliers, producers, middlemen, processors, wholesalers, retailers, consumers:
  - horizontal cooperation at the same VC stage (e.g. groups, cooperatives, associations);
  - vertical cooperation between VC operators at subsequent nodes of the VC; and
  - lateral cooperation with businesses providing product-related services.[4]

[4] Lateral cooperation (cross-branch cooperation) implies collaboration with firms that handle the product without becoming owners of the same, but providing services for charge, such as grading, sorting, packing and drying.

- structures at the level of VC supporters (meso-level) with private and public service providers offering:
  - non-financial services (Business Development Services – BDS); and
  - financial services (e.g. short-term operation and long-term investment financing);
- structures at the level of VC enablers (macro-level), namely framework conditions, including:
  - policies (e.g. sector, conservation, poverty reduction policies);
  - legislation (e.g. environmental protection, seed systems, standards, market levies); and
  - economic and social infrastructure (e.g. markets, roads, education, health);
- structures at the level of VC attitudes (meta-level), such as:
  - social norms (e.g. trust facilitating collective action and limiting free-riding); and
  - social structures (e.g. networks facilitating social and economic exchanges).

2.4.2 Capacity development

The importance of capacity development for facilitating access to markets for rural communities is indisputable. Giuliani and Padulosi (2004) state that

> **"... human capital is the most valuable asset in community-based actions aimed at enhancing incomes and livelihoods. It is interesting to notice that many respondents emphasized that failures of previous projects in having a concrete impact on livelihoods are often related to the lack of capacity building initiatives for the benefit of local communities. Human resources development can be recommended for developing: (i) agronomical practices; (ii) simple processing/value-adding ...; (iii) marketing ...; (iv) policy instruments ..."**

Striving for effective and efficient use of plant genetic resources, income generation and better nutrition for the poor, capacity development for NUS-VCD is needed at all levels: for chain operators, service providers and policy-makers (modified from Padulosi *et al.* [2007]).

- At the level of VC operators, improved capacities will contribute to developing the self-help capacities of producers, traders, processors and consumers to achieve their goals in a sustainable way.
- At the level of service providers, capacity development will contribute to gearing the service offer to VC needs and improving the timeliness, quality and accountability of services provided.
- At the policy level, public stakeholders need to develop their capacities to create an enabling environment fostering NUS-VCD in the interest of biodiversity conservation and pro-poor growth. Furthermore, policy-makers and administration have to improve their negotiation as well as implementation capacities for international agreements.

Capacity development encompasses organizational, technical, marketing and communication skills, and stretches from primary to higher education, formal and informal education. Even if the focus lies on adult learning and extension, capacity development in NUS-VCD should extend to primary and higher education to ensure sustainable change for future generations.

Selected methodologies and tools as well as responsibilities for building structures and developing capacities for NUS-VCD will be explained in more detail in Chapter 4.

Participatory development of value chains

- Five steps to promoting VCD
- From analysis, to strategy, to implementation
- Duration of the VCD planning and implementation process

3.1 Five steps to promoting VCD[5]

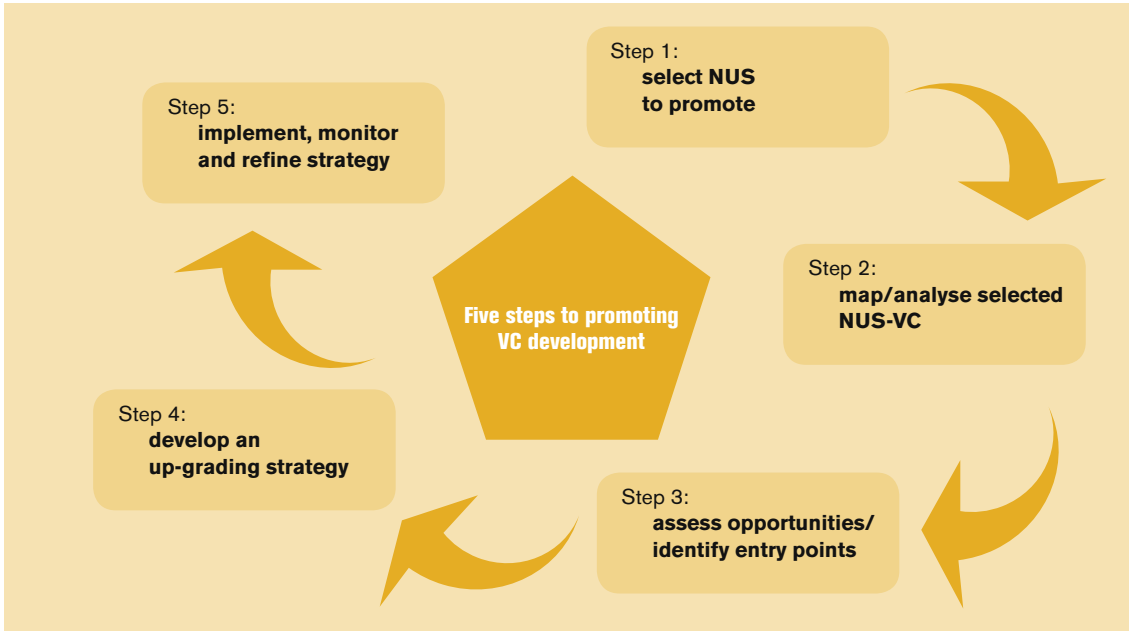
The innate complexity of the VC system requires a strategic approach to developing VCs, which starts with the selection of species that merit to be promoted for their economic, social and environmental potential (step 1). The VC promotion cycle continues with a sound analysis of the VC system, also referred to as VC mapping (step 2), followed by the identification of entry points: opportunities fostering and/or constraints hampering VCD (step 3). Based on agreed-upon priority entry points, stakeholders will then design an upgrading strategy (step 4). The planning phase is followed by step 5, the implementation cycle, consisting of:

- implementation of interventions to strengthen VC competitiveness;
- monitoring of progress; and
- if necessary, refinement or revision of the strategy.

Even if the VC literature provides some different terminology for the various steps in promoting VCD, the general procedures and sequencing are very much the same. The cycle of the proposed five steps to promoting VCD is illustrated in Figure 4.

The sequence of steps towards VC Development is not static, but needs to be flexibly adapted to the prevailing circumstances. Regardless of whether planning a smaller community-based or a larger national project, following the proposed cycle will assist stakeholders to conceive a viable strategy for sustainable VCD. In any case, deploying the proposed structured approach will help avoid *ad hoc* and isolated interventions that too often do not lead to viable strategies and sustainable impact.

Figure 4. Five steps to promoting value chain development



Source: Will (2007)

[5] This section is based on Will (2007).

Since there is no 'one-size-fits-all' solution, successful NUS-VCD depends on the capacities of the private and public stakeholders involved to realistically assess opportunities and threats and to derive appropriate and realizable strategies for sustainable NUS-VCD on a case-by-case basis. Consequently, ensuring stakeholder participation right from the beginning will not only facilitate the integration of indigenous and expert knowledge into the process, but will also contribute to gaining stakeholder commitment, to ensuring their contributions and to developing the necessary capacities and structures for implementing the upgrading strategy agreed upon. Successful participation of private and public stakeholders will result in self-inspired and self-sustained VCD in the long run.

It needs to be emphasized that the continuous participation of the private sector (VC operators and their self-help organizations) will be of utmost importance for the success of any VCD project, since farmers, traders, processors and even consumers are in essence the owners of the VC, and bear the risk of any business (or consumption) decision taken in the process of VC development.

3.1.1 Step 1 – Selection of NUS that merit to be promoted

The success of a NUS-VCD project depends to a considerable degree on the selection of NUS that merit to be promoted, based on an assessment of their existing or realistic and realizable prospective market potential. The selection of NUS for VCD should be implemented in a participatory process. It should be combined with a sound assessment of market opportunities (including possibilities of creating demand through consumer information and education) and supply potential within consideration of the prospective supply chain competitiveness compared with other suppliers, as well as complementary and substitute products.

Quite frequently, products are chosen on the basis of mere speculation, such as the product is "considered to have great potential" without really knowing, and especially specifying, the potential in the light of market access, market trends, consumer behaviour and performance of competitors in the market, possible substitute products and, last but not least, the capacities of the suppliers and performance of the entire chain.

Criteria for the selection of NUS that merit to be promoted should be handled in a flexible way, with consideration of the prevailing situation and the social, environmental and economic development objectives aspired to. A balanced application of the following criteria should lead to the selection of NUS with realistic potential for poverty alleviation and biodiversity conservation:

- **potential for poverty reduction and social benefits:** e.g. relevance to the poor and to vulnerable groups, potential for income generation, potential for employment creation along the VC, relevance for food security and balanced diet, social inclusion;
- **biological diversity and NUS characteristics:** e.g. conservation potential (*in situ*/*ex situ*), seed availability, propagation methods, adaptability to locations, access to appropriate technologies, potential yields, possible uses and value-addition, perishability, nutritional value;
- **growth potential and competitiveness in local, national and/or international markets:** e.g. unmet market demand (quantities or product range), unused competitive advantages (e.g. unique product, cost advantage, proximity to markets), potential geographical expansion (other rural or urban markets, national, regional or international markets);
- **prospects of success**: e.g. cultural roots, traditional or indigenous knowledge, prospects for economic and/or other benefits, low investment requirements, potential product diversification, possible use of by-products, conducive environment (e.g. provision for usufructuary rights – the legal term for the right to enjoy the products of property a person does not own);

- **possible outreach:** e.g. number and regional coverage of rural and urban households, number and regional coverage of enterprises (trade, transport, processing) and consumers that can be reached, number and regional coverage of potential for employment creation, potential for replication; and
- **potential relevance for economic indicators:** e.g. return on investment (labour, land, capital), potential share in Gross Domestic Product (GDP), in exports and in overall employment creation (e.g. through promotion of labour-intensive processing).

3.1.2 Step 2 – VC analysis/VC mapping

VC analysis (also referred to as VC mapping) is not an end in itself but aims at gaining knowledge of the business reality as a basis for elaborating viable VC upgrading and promotion strategies. The purpose of VC analysis is to:

- identify concrete benefits for operators, motivating them to cooperate and commit resources;
- identify entry points for VCD; and
- derive viable VCD upgrading strategies.

> **"Value chain analysis reveals the system of interactions and relations between the different firms and organizations influencing the operation of the market system in the value chain. The relationships shed light on how the product is traded and between whom. It shows the process of creating value, which in many cases is not just production but the value-added activities that increase incomes. This information is crucial for identifying solutions for improving malfunctioning markets"** (SEEP Network 2006)

In cases where a new NUS-VC is to be introduced, the VC analysis could be oriented to similar commodities produced and marketed in the selected location or region. This will enable stakeholders to understand specific local conditions and especially producer-to-market linkages. The resulting VC map of comparable products should already give guidance for deriving intervention strategies. The findings may also be benchmarked with the VC map of the selected NUS produced in other regions, and conclusions can be drawn for VC upgrading and promotion in the target region.

The quality of the analysis is decisive for the development of a realistic and realizable strategy that will enable stakeholders to use the potential of NUS and thereby contribute to pro-poor growth and on-farm agro-biodiversity. A sound VC analysis is necessary to identify entry points for NUS-VCD where interventions could really make a change.

Like all steps in VCD, VC analysis should as far as possible be implemented in a participatory way, and be complemented with research only where necessary. As a principle, analysis should extend to all questions necessary for deriving a VCD strategy, but should be limited to the essential to avoid 'analysis paralysis'.

In first instance, VC analysis or mapping aims at analysing the structures of the VC System for Competitiveness, namely:

- identification of stakeholders (VC operators, VC supporters and VC enablers) and existing networks;
- analysis of the roles and responsibilities of all stakeholders for the performance and competitiveness of the VC; and
- assessment of the degree and structures of interdependencies between the different stakeholders;

complemented by an

- economic analysis that covers market potential, cost-benefit relations and return on investments, and distribution of gains among operators along the VC, etc.

With regard to the objectives of biodiversity conservation and relevance of NUS-VCD for pro-poor growth, special attention has to be paid to:

- identification of existing or potential NUS that merit promotion;
- assessment of indigenous knowledge on NUS production, processing and consumption;
- analysis of the livelihood systems of VC operators.

In the end, decisions on whether or not to promote VCD of certain NUS should always be based on the expected return on investment (capital and/or labour) for the VC operators. However, in the case of resource-poor collectors or small-scale farmers, return on investment not only refers to monetary income but also has to reflect the benefit of NUS for "livelihood support including ... employment, nutritional value, food supplements and other macro-level contributions such as medicinal use, timber and livestock fodder." (Kruijssen and Mysore, unpublished).

Depending on the needs for the development of a given NUS-VC, the analysis may also extend, but is not limited, to:

- describing demand, production, processing and trading structures that impede or foster VC competitiveness;
- identifying opportunities for value addition and estimating the value-adding potential at different stages of the VC;
- assessing the efficiency or deficiencies of linkage management by VC operators along the VC;
- describing institutions supporting VCD, including a strengths, weaknesses, opportunities and threats (SWOT) analysis, as well as identifying needs for upgrading the capacities of service providers; and
- describing the political, legal, administrative and infrastructural framework conditions, including analysis of their impact on VCD, and need for change.

In conclusion, while sound VC analysis certainly is essential for developing a viable intervention strategy, efforts to analyse the VC system should be limited to assembling information that is really necessary to develop solutions conducive to VCD. In some cases, it might be sufficient to realize a rapid appraisal of indigenous and expert knowledge, involving a few key stakeholders only; in others, it might be necessary to implement an in depth survey, including field and desk research.

In any case, it is recommended to involve sound traditional and expert knowledge in an interdisciplinary team capable of assessing the VC from the perspectives of the three key objectives of NUS-VCD: pro-poor growth; business economics and marketing; and biodiversity conservation.

3.1.3 Step 3 – Assessment of opportunities and identification of entry points

At this point of the strategic cycle for VCD, stakeholders identify challenges and opportunities that are critical for VCD, and hence could be used as entry points (also referred to as points of leverage) to either overcome constraints or to seize opportunities. The key question for identifying and prioritizing leverage points is "Which interventions can really make a change in a given VC context?"

3.1.4 Step 4 – Development of an upgrading strategy

Based on the VC analysis, the assessment of opportunities and the identification of points of leverage, a realistic and realizable upgrading strategy can be designed.

To derive a viable intervention strategy and assure the commitment of stakeholders, the strategy should specify:

- the vision for VCD (jointly agreed upon by the stakeholders);
- the leverage points to be addressed;
- the solutions proposed;
- the indicators measuring progress; and
- the various stakeholders taking responsibility for implementing parts of the VCD strategy in line with their specific roles in and capacities for VCD.

The strategy development process should be complemented by:

- an action plan setting a timeframe for the implementation of solutions; and
- the creation of a steering group to coordinate the implementation of the VCD process.

3.1.5 Step 5 – Implementation of the upgrading strategy, monitoring of the progress and refinement of the strategy

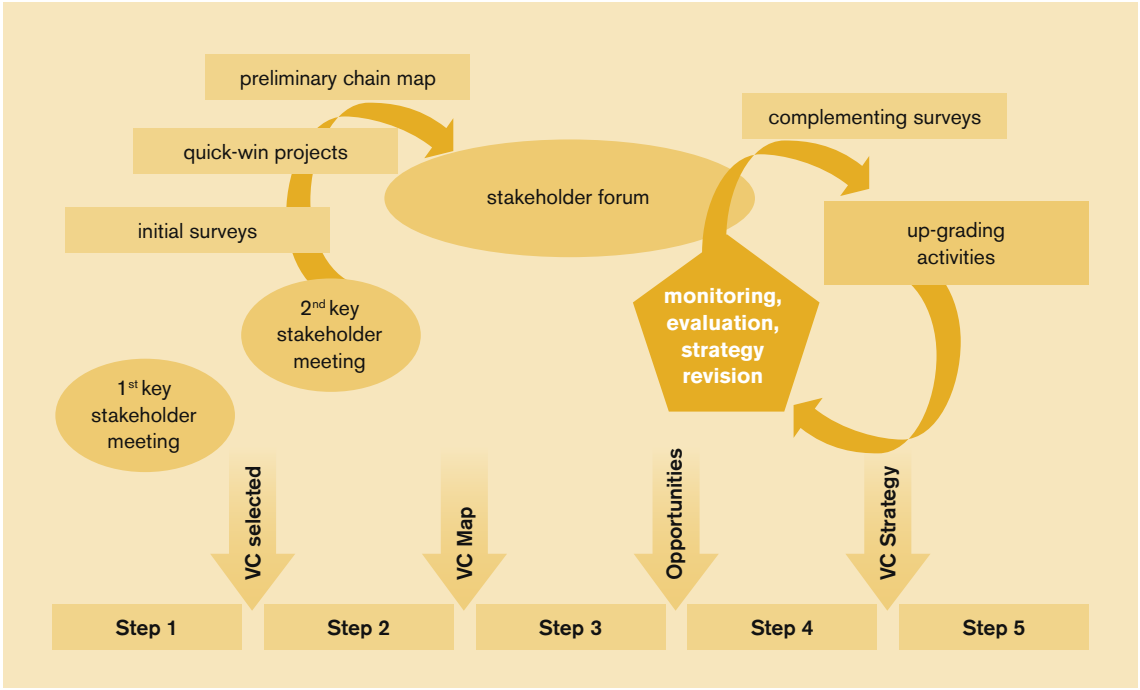
Many stakeholders form part of the VC system and many of them have a stake in implementing the VCD strategy. Consequently, the participatory approach–through from the selection process up to strategy development–aims at developing a concerted and holistic approach, in which diverse actors take their responsibilities to address the manifold and interlinked challenges in the VC system. In this respect, the participatory approach aims at facilitating stakeholders to understand their respective roles in VCD and motivating them to take responsibility and commit resources with a view to realizing the jointly developed and agreed intervention strategy.

3.2 From analysis, to strategy, to implementation

A desirable typical course of actions and events to implement the five steps to participatory VCD can be described as follows (see Figure 5):

- **1st key stakeholder workshop:** design preliminary VC map, identify information gaps, formulate questions for complementary analysis, plan actions and way forward in VC analysis and strategy development;
- **initial surveys to complement the preliminary VC map:** e.g. market surveys, economic analysis, institutions analysis (public and private VC supporters), and analysis of political, legal, infrastructural and other framework conditions;
- **accompanying quick-win projects:** implementation of initial small projects aimed at pilot testing of relevant interventions and gaining the commitment of stakeholders;
- **2nd key stakeholder workshop:** present survey results, discuss needs for review of studies, further refine preliminary VC map, and plan main stakeholder workshop.
- **main stakeholder forum, with broad participation:** create awareness and initiate VCD, present key findings (map, surveys), facilitate participatory refinement of the preliminary VC map, facilitate participatory identification of leverage points (constraints and opportunities), facilitate participatory design of a VC upgrading strategy, and agree on roles and responsibilities of VC stakeholders (at micro-, meso- and macro-level) in strategy implementation;
- **complementary surveys:** if necessary, broader or deeper, or both, analyses have to be implemented; and
- **participatory implementation** of the intervention strategy, including participatory monitoring, evaluation and plan revision.

Figure 5. From analysis to strategy to implementation



Source: Will (2007)

3.3 Duration of the VCD planning and implementation process

The duration of the entire process depends on the single case, especially on the particularities of the NUS (traditional knowledge, cultural values, existing or potential market prospects, availability of technologies, etc.). Furthermore, the need for more in-depth analyses, the commitment and capacities of stakeholders (VC operators, VC supporters, VC enablers), the prevailing social structures and norms and, last but not least, the availability of resources to initiate, facilitate and advance the process are all factors that influence the duration of the VC process. The possibility of implementing some short-term actions to produce quick success stories that illustrate the benefits of the VC project may contribute to creating stakeholder commitment and hence accelerate the process.

As a general orientation, the overall duration from the first key stakeholder meeting, in which a decision has to be taken on the NUS that merits promotion (step 1), to the agreement on a VCD strategy (step 4) can last between 3 and 6 months. It should be noted that the pace at which the process is implemented is, on the one hand, decisive for maintaining momentum, but, on the other hand, needs to be adapted to the absorption capacities of the stakeholders. In view of the complexity of VCD, especially in cases where NUS are newly introduced into farming systems and an entire VC has to be built, implementation (step 5) will need sufficient resources and an appropriate time horizon of up to 5 years, and even more depending on the prevailing situation.

More information on possible approaches to VCD can be drawn from the manuals and handbooks listed below.

FURTHER READING

Bernet, T., Thiele, G. & Zschocke, T. 2006. Participatory Market Chain Approach (PMCA) – User Guide. International Potato Center (CIP) – Papa Andina, Lima, Peru.
Available online at: http://papandina.cip.cgiar.org/fileadmin/PMCA/User-Guide.pdf

DFID. 2007. Making Value Chains work better for the poor – A Toolbook for Practitioners of Value Chain Analysis. Making Market Systems work better for the Poor (M4P).
Available online at: www.markets4poor.org/?name=publication&op=viewDetailNews&id=964

FIAS. 2007. Moving toward competitiveness – A Value-Chain approach. The World Bank Group. Available online at: ww.ifc.org/ifcext/fias.nsf/AttachmentsByTitle/MovingTowardCompetitiveness/ $FILE/Value+Chain+Manual.pdf

ILO [International Labour Organization]. 2006. A guide for value chain analysis and upgrading; ILO, Geneva, Switzerland. Available online at: www.value-chains.org/dyn/bds/docs/detail/545/6

KIT [Royal Tropical Institute]/Faida MaLi/IIRR [International Institute of Rural Reconstruction]. 2006. Chain empowerment – Supporting African Farmers to Develop Markets. KIT/Faida MaLi/IIRR.
Available online at: http://smartsite.kit.nl/smartsite.shtml?id=SINGLEPUBLICATION&ItemID=1952&ch=FAB

Marshall, E., Schreckenberg, K. & Newton, A.C. (editors). 2006. Commercialization of non-timber forest products: Factors influencing success – Lessons learnt from Mexico and Bolivia and policy implications for decision-makers. UNEP, Cambridge, UK. Available online at: http://quin.unep-wcmc.org/forest/ntfp/outputs.cfm

Miehlbradt, A.O. & McVay, M. 2006. Implementing sustainable private sector development: striving for tangible results for the poor – the 2006 reader. ILO, Geneva, Switzerland.
Available online at: www.bdsknowledge.org/dyn/bds/docs/497/PSDReader2006.pdf

Springer-Heinze, A. (editor). 2007. ValueLinks Manual – The Methodology of Value Chain Promotion. Module 9: Introducing Social, Ecological and Product Quality Standards. GTZ, Eschborn, Germany.
Available online at: www.value-links.de/manual/index.html

USAID [United States Agency for International Development]. 2005. USAID Value Chain Training. USAID, Washington DC, USA. Available online at: www.microlinks.org/ev_en.php?ID=13709_201&ID2=DO_TOPIC

RELEVANT WEB SITES

Global Donor Platform – Inter-agency Web site for the exchange of information on value chains, linkages and service markets
www.value-chains.org/dyn/valuechains/bdssearch.home

Global Value Chains
www.globalvaluechains.org/

Making Markets Work for the Poor
www.markets4poor.org/

USAID – The Value Chain Approach and Microenterprise Development.
www.microlinks.org/ev_en.php?ID=9652_201&ID2=DO_TOPIC

ValueLinks
www.value-links.de/

Building structures and developing capacities for NUS-VCD
principles, methodologies and tools

Before elaborating on appropriate approaches and instruments, it might be useful to recall the reasons why VCD has become an issue in biodiversity conservation and poverty reduction strategies. In many traditional farming systems worldwide, the contribution of agro-biodiversity is fundamental to food security and nutrition, ecosystem stability and income for the rural poor. However, this potential is still largely untapped, mainly because of the formerly more-or-less isolated practices of conserving biodiversity through predominantly ex situ methods and of alleviating poverty through mainly socio-cultural interventions. Shifting from these somewhat inefficient and ineffective practices to more business-oriented approaches for developing the potential of NUS calls for a change in guiding principles, in methodologies and in tools suitable for creating the impacts that benefit the poor while maintaining agro-biodiversity.

Following the logic of sustainable development (Section 2.4), structure building and capacity development constitute core elements in achieving significant and broad effect. This also holds true for the development of VCs in general, and for VCs of NUS in particular. Furthermore, methodologies and tools that have proven their practicability in comparable contexts and with similar sets of objectives in developing countries can be replicated for the development of NUS-VCs. To that end, this chapter takes stock of relevant methodologies and tools while stressing situations where due consideration has to be given to addressing NUS-specific characteristics. However, since the many possible approaches and instruments for VCD allows one only to touch on the theory, readers interested in more detailed guidance are referred to the further readings and relevant Web sites at the end of each section.

4.1 Building structures and developing capacities for strengthening the Value Chain System for Competitiveness

The complex context of business-oriented approaches as described in the preceding chapters requires an integrated development path, as described by the Value Chain System for Competitiveness. Aiming at strengthening the competitiveness of NUS-VCs, structures have to be built and capacities developed at the level of:

- VC operators (micro-level);
- VC supporters (meso-level); and
- VC enablers (macro-level),

and change has to be facilitated at the level of VC attitudes (meta-level).

Given that approaches to NUS-VCD are not one-dimensional but have to address these very complex, interrelated and dynamic structures, intervention strategies need to address VCD in a holistic, participatory and process-oriented manner. Such integrated approaches are exemplified in the following two case studies (see Boxes 4 and 5) that give an idea of the need to adapt approaches to the prevailing circumstances and the complexity of the VCs. Both case studies follow the logic of the VC System for Competitiveness.

Box 4. Complex approaches to upgrading the VC System for Competitiveness: Case study of the promotion of intra-specific diversity of coffee varieties in Ethiopia

Matrix of interventions

Building structures and developing capacities at the level of VC operators (micro-level):

- access to adapted and healthy planting material through promotion of tree nurseries;
- access to export markets through certification to international trade standards;
- certification through support to association building and upgrading for compliance with international standards; and
- fair distribution of margins through support of export linkages to European importers committed to fair-trade practices.

Building structures and developing capacities at the level of VC supporters (meso-level):

- improvement of technical advice to farmers through capacity development;
- strengthening the position of farmers in the global VC through the facilitation of access to market information;
- strengthening Ethiopia's position in the global VC through the improvement of laboratory services;
- strengthening Ethiopia's position in the global VC through export promotion; and
- strengthening Ethiopia's position in the global VC through networking within the Common Code for the Coffee Community[†]

Building structures and developing capacities at the level of framework conditions (macro-level):

- access to roads through infrastructure improvement;
- introduction of incentives for investments in so far neglected or underutilized coffee varieties through loan grants;
- conservation of intra-specific biodiversity through establishment of protected areas; and
- conservation of intra-specific biodiversity through enabling limited usufructuary rights for local farmers.

Facilitating change of attitudes at the level of social norms and structures (meta-level):

- implicit, especially in all measures related to fair-trade practices and networking.

[†] The Common Code for the Coffee Community (4C) is an international initiative supported by the European Coffee Federation, the Swiss State Secretariat for Economic Affairs (SECO) and the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) aimed at improving market access and fair-trade and the use of environmentally sound production technologies (see www.sustainable-coffee.net).

Source: Nill and Boehnert (2006)

Box 5. Complex approaches to upgrading the VC System for Competitiveness: Case study of developing markets for agro-biodiversity in dryland areas in Syria

Matrix of recommendations (generic for NUS)

Production level:

- characterization of traits, uses and adaptation;
- identification of best cultivation technologies;
- planting material and training in cultivation practices made available to farmers; and
- development and distribution of information on the species and its use.

Market level:

- organization of meetings involving market-chain actors to discuss how to enhance market potential;
- in depth market studies of market options and market access (fair trade, joint ventures), using participatory analysis;
- exchange of knowledge with other market-chain actors in other countries;
- private and public partnerships for the construction of small infrastructure for the production of a better quality product; and
- training of producers in improved processing techniques, better quality storage and packaging.

Conservation level:

- studies on the impact of unsustainable collection from the wild;
- training on sustainable collection practices suitable for farmers and collectors; and
- growing of cultivated species close to wild species to maintain gene flow and continued evolution of these rustic species.

Policy level:

- reformulation of regulations aiming at environmental conservation, as well as maintaining the economic value of wild species for poor rural communities; and
- development and adaptation of the existing legal framework for quality standards and product labelling.

Source: Giuliani (2007)

4.2 Guiding principles for VCD[6]

Aiming at facilitating better market access for the rural poor, it is essential to understand that value addition takes place in markets and that the private sector consequently leads VCD. It is furthermore necessary to recognize that all VC operators–including small-scale farmers and collectors–form part of the private sector.

Aspiring to integrate these usually marginalized groups into VCs implies the need for developing their capacities to take informed business decisions and to communicate, cooperate and negotiate with their business partners on an equal basis. However, it also requires upgrading of the managerial and technical capacities of other up- and downstream operators. This will improve their performance and facilitate transparent collaboration and trustful cooperation between the business partners at the various nodes of the VC, thus strengthening the overall competitiveness of the final product.

4.2.1 Aligning attitudes toward the needs of private sector development

Corresponding to the paradigm shift from traditional approaches for biodiversity conservation and poverty alleviation, towards VCD of NUS as described in the preceding chapters, there is a need for aligning attitudes

[6] This section is based on Will (2006b; 2007).

toward Private Sector Development (PSD). This implies a far-reaching shift in attitudes of all stakeholders (private, public, NGOs, assistance agencies) involved in NUS-VCD with regard to:

- **perception of the business sector:** shifting from the traditionally sceptical attitude of the public services sector and NGOs toward the business sector, towards adopting a true VC perspective, in which entrepreneurs (traders, processors) play a crucial role in linking farmers to markets, and hence need to be integrated as partners (and not believed to be mere exploiters) into the development and implementation of VC upgrading strategies;
- **perception of small-scale farmers:** shifting from the traditionally paternalistic attitude of public services and NGOs toward the resource-poor, towards adopting an attitude that respects small-scale farmers as actors in the VC, actors who take their farming decisions independently and in the logic of 'farming as a business', since ultimately it is the farmer who bears the business risk of committing resources to new ventures;
- **perception of pro-poor growth:** shifting from the traditional smallholder-agriculture-centred view of poverty alleviation, towards a more holistic perception of pro-poor growth, in which approaches to generating income extend beyond the smallholder farming sector to downstream stages of the VC, and in which creation of off-farm employment (agro-industry or other sectors) is accepted as an equal opportunity for alleviating poverty; and
- **perception of on-farm agro-biodiversity:** shifting from the predominant objective of conserving broad on-farm agro-biodiversity independent of the possible economic and social impacts involved, towards an integrated view of the farming-system, in which considerations of social and economic effects may override considerations of agro-biodiversity when taking decisions on cultivation calendars.

In this setting, change management is one of the key challenges for stakeholders aspiring to facilitate VCD. In many cases, NGOs or public services, such as extension or research, will take up the facilitation role. To be able to continuously motivate all stakeholders (especially those from the private sector) to cooperate in the sense of the VC vision and strategy; to identify relevant new business partners; and to manage internal and external, private and public sector linkages and joint projects, VC facilitators have to adopt new attitudes and acquire new skills.

4.2.2 Modes of delivery for VCD-facilitation

Further guiding principles for the implementation of VCD strategies refer to the modes of delivery used by VCD facilitators:

- **apply a systems approach:** integrate VC operators and support structures, i.e. all stakeholders at micro-, meso- and macro-level, according to the Value Chain System for Competitiveness;
- **apply an approach that creates stakeholder accountability:** provide for an exit strategy right from the start by leaving accountability for VCD with the private and public actors within the VC System;
- **apply a demand-driven, participatory and process-oriented approach:** enable stakeholders to develop their self-help capacities to design objective-oriented strategies, and to plan, implement and monitor VCD interventions;
- **apply an approach drawing upon change agents:** build on the capability of actors who really can make a change (opinion leaders) by taking up innovations and creating success stories that will motivate others to replicate;
- **apply an approach that creates significant impacts while facilitating up-scaling:** create quick-win projects to achieve stakeholder commitment while providing for sufficient resources and an adequate time horizon to support the achievement of significant and broad impacts; and
- **apply a bottom-up-top-down approach:** involve a critical mass of innovative VC operators ready for change (bottom-up) and support the structures at the macro- and meso-levels to facilitate VCD (top-down).

4.2.3 Roles of private and public stakeholders

As yet another guiding principle, it is critical to define clearly the roles of private and public sector stakeholders in VCD:

- **VC operators (business people):** assume responsibility for all processes related to bringing products to markets; creating effective and efficient business linkages; taking independent business decisions; bearing the business risk; etc;
- **private and public service providers:** assume responsibility–and are accountable–for providing competent and VC-oriented services, including R&D, training and extension, market information and marketing intelligence and financial services, etc;
- **policy-makers (government, line ministries, districts, communities):** assume responsibility for creating an enabling political, legal and infrastructural environment for VCD and contribute to efficient public-private dialogue and cooperation, etc; and
- **public administration:** assume responsibility for sovereign tasks: maintaining infrastructure, enforcing legal provisions, licensing, collecting levies, extension services for marginalized groups, etc.

4.2.4 Roles of VCD-facilitators

VCD needs facilitation, especially the integration of the rural poor into VCs. The role of VCD facilitators is that of moderating the process from VC analysis to implementation. VCD facilitators must be capable of taking up existing, market-induced initiatives and of moving the process forward in such a way that the efforts of the business sector can develop into sustainable VC structures. In cases where there is realistic potential for the formation of VCs, potential which nevertheless has not been taken up by the business sector, it can also make sense for facilitators to stimulate the creation of VCs.

VCD may be moderated by private sector stakeholders, such as lead companies, farmer organizations or business associations. However, in the widespread absence of awareness of the need for and benefits of developing VCs, VCD is usually facilitated by public institutions (e.g. extension services, research), by donor-financed programmes or NGOs.

Especially in the case of public organizations, assistance programmes or NGOs, the role of facilitators is strictly limited to moderating the VCD process by brokering information and facilitating networking, and to supporting the stakeholders to understand VCD, to develop linkages, to access non-financial and financial services and to lobby for enabling framework conditions. VCD facilitators should stay neutral, meaning that they should never commit themselves to business activities, for example by taking business decisions on behalf of VC operators or by assuming VC functions such as marketing of produce, since this bears considerable risks of distorting markets and creates structures that are not sustainable. There is no doubt that the private sector has to be in the lead to ensure business-oriented approaches, while the role of VCD facilitators should be to support win-win-partnerships and make pro-poor growth possible by trying to cushion imbalances in VCD and to equilibrate gains at different VC nodes. Furthermore, VCD facilitators are responsible for developing outreach concepts to achieve significant and broad impact with regard to the three general objectives of NUS-VCD: food security, pro-poor growth and biodiversity conservation.

4.2.5 Approaches to foster self-help capacities of stakeholders for VCD

Before considering a more technical inventory of methodologies and tools (see next Section), further guiding principles refer to approaches aiming at facilitating the emergence of self-sustained VCD:

- **facilitate an approach driven by market opportunities (demand as starting point for VCD):** the rationale is that labour and capital invested at all stages of the VC will only translate into income for the VC operators once consumers buy the final product;

- **facilitate competitiveness building:** the rationale is that products will only find a market when they are competitive in terms of meeting consumer demand, cost-price relations, quality, reliability of supplies, etc;
- **facilitate collective action:** the rationale is that joining forces along the VC or within farmers' or traders' groups creates benefits (e.g. scale for marketing and access to knowledge, lobbying potential);
- **facilitate trust building:** the rationale is that the current fragmentation of VCs can only be turned into functioning, and hence profitable, supply-marketing linkages if trust prevails in business relations; and
- **facilitate equitable distribution of benefits:** the rationale is that successful VCD depends on the motivation of all VC operators, which can best be achieved by assuring a 'win-win situation'.

4.3 Inventory of methodologies and tools

4.3.1 Building structures and developing capacities at the level of VC operators (micro-level)

The currently prevailing weak cooperation among VC operators, the low productivity and the high wastage rates from the field to the consumers' table are the main cause for the currently limited marketability and competitiveness of domestic food production in many developing countries. As a consequence, livelihoods are vulnerable and the purchasing power of both rural and urban poor households is low. To break this deadlock, it is necessary to better seize opportunities for income generation and employment creation.

A combined approach of improving productivity and quality, supporting the shift from subsistence farming to market-orientation and facilitating more business-oriented farm management, will be required to reduce the risk of smallholders' investments of land, labour and capital in the production of NUS. Building structures and developing capacities for competitiveness requires the transfer of knowledge and technologies, accompanied by measures that facilitate operators translating theory into daily work routines.

Experience shows that a number of intervention areas play a role in building sustainable structures for increased competitiveness and market access at the level of VC operators:

- **building technical capacities:** good practices in seed selection, seed collection and propagation management, production, post-harvest, transport, logistics, processing, wholesaling and retailing (including quality assurance, conservation and environmental considerations), etc;
- **building entrepreneurship capacities:** management tools enabling VC operators to fulfil their functions as businesses (i.e. 'NUS farming as a business', including financial management, costing and negotiation skills), etc;
- **building marketing capacities:** marketing tools enabling VC operators to identify market opportunities and risks through market research and to adapt their marketing approach[7] to selected market outlets, etc;
- **building capacities for collective action (horizontal cooperation):** networking approaches enabling VC operators to cooperate in groups, cooperatives, associations for joint learning, economies of scale, improvement of negotiation power, etc;
- **building capacities for business linkages (vertical cooperation):** networking approaches enabling VC operators to establish business relations with up- and downstream VC partners to facilitate market access and to strengthen VC competitiveness;

[7] The classical marketing approach is divided into four general sets of activities, referred to as the 4 Ps: Product, Pricing, Placing (or Distribution) and Promotion.

- **building capacities for linking up with complementary businesses (lateral cooperation):** business approaches enabling VC operators to identify and cooperate with relevant businesses providing product-related services[8];
- **building capacities for continuous innovation:** approaches enabling VC operators to stay competitive through product development, product differentiation, market diversification, integration of indigenous knowledge, etc;
- **building capacities for accessing and using services:** development of the demand side of the service market (assess and formulate service needs; select, contract and control service providers; and translate services into daily work routines); and
- **building capacities for advocacy and lobbying:** approaches enabling VC operators to assess and formulate advocacy needs, and discuss and negotiate possible solutions, through participation in private-public dialogue forums and advocacy.

This type of capacity development, which stretches from the development of skills, to support to joining forces in various types of networks, will contribute to building structures for sustained NUS-VCD. What organizations might have a stake in answering these capacity development needs will be discussed in Section 4.3.2.

Before going further, some additional explanations will be given to better comprehend the issues of marketability and competitiveness as preconditions for market access, as well as vertical cooperation, horizontal cooperation, quality assurance and product differentiation through branding and continuous innovation as preconditions for marketability and competitiveness.

Further information on methodologies, approaches and instruments for building structures and developing capacities at the level of VC operators (micro-level) can be drawn from the publications listed under further readings in Chapter 3, and topic-related publications listed at the end of the various sections below.

4.3.1.1 The marketability of products and the competitiveness of VCs – major incentives facilitating market access

Access to markets is usually among the primary concerns articulated by collectors, small-scale farmers and their supporters, such as extension services and NGOs. Access to markets implies more than the question of how and where to find customers, and requires a set of capacities (marketing know-how) and structures (business linkages and market infrastructure) to be in place that facilitate establishing sustainable market outlets.

Assessing market opportunities starts with an assessment of the marketability and competitiveness of the product. This, in turn, entails gearing business decisions (and hence VCD) to market opportunities, based on market research, providing answers to the following questions:

- which product to grow and which varieties to select for which target markets;
- what costs are implied and what pricing strategy to apply for which distribution channel;
- which alternative use of land may be more remunerative;
- which production, harvesting and handling technologies to apply to satisfy customers;
- which business partners to link up in the VC;
- what is the performance of competitors in the market; and
- which substitute products might compete with the product offered.

[8] Lateral cooperation (cross-branch cooperation) refers to the collaboration with firms, which handle the product without becoming owners of the same but providing services for charge such as grading, sorting, packing, drying, milling, transport, etc.

This implies that decisions have to be founded on individual production and management know-how, labour, land and investment capacities, and the need to maintain a farming or household system that provides for the basic needs of all household members.

In a nutshell, the marketability and competitiveness of a product–and consequently market access–depends first and foremost on the structures and capacities at the level of the VC operators, namely:

- **market opportunities:** VC development starts from the effective or potential demand of final consumers, since demand-led supply decisions will contribute to avoiding losses because of oversupply;
- **product-related competitiveness:** VC competitiveness depends on the selection of market-oriented types and varieties of products, their qualities and marketable volumes, as well as on continuity and reliability of supplies;
- **process-related competitiveness:** VC competitiveness depends on productivity and cost-efficient processes, implying effectiveness and efficiency in all production-to-market processes; and
- **function-related competitiveness:** VC competitiveness also depends on the performance of VC operators in fulfilling their respective functions within the VC, namely ensuring product and process quality while minimizing costs as far as possible.

Market access depends on the competitiveness of the final product offered to consumers, which is a derivative of the performance of all VC operators in fulfilling their functions in a professional, efficient and effective way. To identify upgrading needs, existing structures and capacities have to be assessed and knowledge and institutional gaps at the different stages of the VC identified as part of the VC analysis. Upgrading refers to product, process or function-related innovation or improvements (within a firm or along a VC) for the purpose of increasing value added or competitiveness, or both.

Particularities of NUS fostering marketability

With regard to marketability, there are special features of NUS that may foster their marketability, such as:

- traditional knowledge and utilization, a striking name, the geographical origin or the history of the product that can be used for branding and product promotion to revive demand for traditionally consumed products or spark consumer imagination, provided the quality and quantities meet consumer expectations and the products are properly promoted (e.g. argan oil from Morocco (Nill and Boehnert 2006) or quinoa from the Andes[9]); and
- the special or multiple uses many NUS can serve, especially with regard to medicinal properties, the possibility of using NUS as food ingredients (e.g. *lulo* or *camu camu*[10]), the possibility of using by-products (different food preparations, animal feed, shelter) as well as the possibilities of further processing to exploit contents such as essential oils (e.g. citrus peel) or resinoids (e.g. *Pinus brutia* in the Mediterranean, African pear/plum) and suchlike.

Possible measures to support upgrading for improved marketability and competitiveness

In addition to the more technical skills, such as production, handling, processing and trading technologies, the marketability of products and competitiveness of VCs also depends to a large degree on efficient

[9] Recent industry news: "Quinoa – meat analogue of the future?" in: foodnavigator, 27/06/2007. food-decision.com/news/ng.asp?id=77697-soglowek-quinoa-meat-analogue

[10] Recent industry news: "Superfruit flavours get ever more exotic" in: Food&Drink Europe.com, 23/10/2007. www.foodanddrinkeurope.com/news/ng.asp?id=80785

and effective business linkages (vertical cooperation), the willingness and capacities for collective action (horizontal cooperation), the effectiveness of cooperation with service providing companies (lateral cooperation), the ability to ensure quality along the VC and to establish sustainable market outlets. In this context, product branding and labelling, are important, as well as the innovation capacities of the VC operators. These issues will be further discussed in later sections.

4.3.1.2 Efficient and effective business linkages (vertical cooperation) – a precondition for sustained market access

Obtaining better integration of collectors and small-scale farmers into VCs, and more equal distribution of gains between VC operators, in particular better margins for the resource-poor at the upstream end of the VC, calls for overcoming currently highly fragmented business linkages.

Reliable and efficient cooperation between the business partners along the VC (vertical cooperation) is a must for assuring sustained market access in increasingly competitive markets. VCD aims at promoting these production-to-market linkages. In the ideal case, once trustful and reliable cooperation is established and equitable margins assured at all stages of the VC, transaction costs and wastage rates along the VC will be reduced, enabling

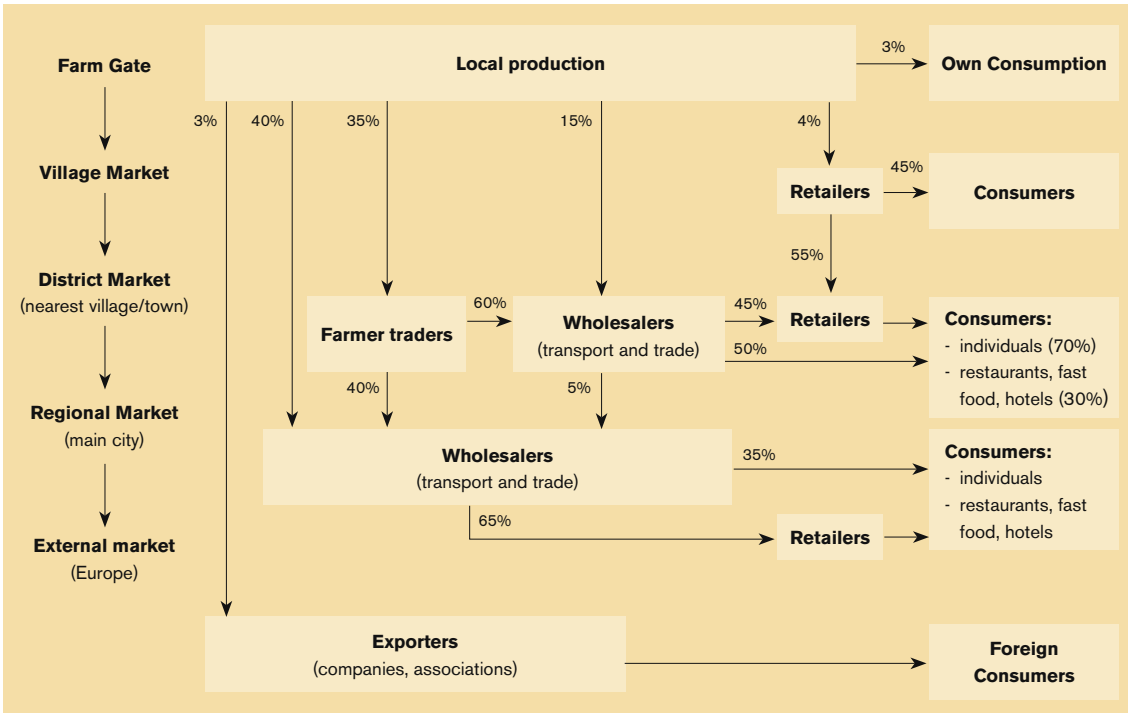
- producers to benefit from income generated through market access;
- traders and processors to benefit from reliable supply sources; and
- consumers to benefit from better quality and safe food at more affordable prices.

Taking informed business decisions on distribution channels

In general, there are different possible channels from farm to final consumer. As a general rule, it is recommended not to sell through a single outlet but to diversify business linkages in order to minimize marketing risks. For each of the so-called distribution or marketing channels, business linkages have to be established between VC operators at each and every node of the VC. From the perspective of producers, typical modes of distribution are as follows (in ascending order from short or single node VCs to long or multiple node VCs):

- marketing directly to final consumers at farmgate or in market places;
- supplying the retail trade in rural or urban markets, groceries or local supermarkets;
- providing restaurants, hotels, hospitals, company canteens or other caterers;
- selling to the processing industry;
- delivering to the wholesale or export trade; or
- distributing via intermediaries such as brokers or middlemen.

Figure 6. Garden Egg market channels and market shares (Ghana)



Source: Horna *et al.* (2007)

Operators may opt for one or the other marketing channel depending on criteria such as:

- volumes and regularity of supplies;
- availability of work force;
- collective marketing opportunities;
- distance to potential customers;
- transport cost and availability;
- marketing skills and experiences;
- access to market information; and
- market contacts.

Selecting distribution channels is a business decision, for which VC operators have to weigh the profitability of different distribution channels with regard to the respective transaction costs and opportunity costs involved. Transaction costs include the costs of searching out market information and business partners, for customer and market screening and for negotiating, monitoring and enforcing contracts. Opportunity costs are the (theoretical) costs in terms of an opportunity forgone (and the benefits that could be derived from that opportunity), or the most valuable forgone alternative (or highest-valued option forgone), i.e. the second-best alternative.

Shortening the VC by integrating trade and/or processing functions at farmer or farmer group level

Considerations about optional distribution channels may lead to the decision that, rather than linking with business partners, farmers instead integrate all or parts of the downstream functions in the VC, such as value addition, trading, transport and logistics, and perhaps marketing to final consumers. At the same time, careful consideration of costs and benefits might also lead to the conclusion that it would be more efficient, and the final product more competitive, were the functions fulfilled by specialized downstream business partners having the necessary human, social and financial capacities to perform the respective processes.

The general solution often called for by collectors, small-scale farmers and their supporters, such as extension services and NGOs, is to establish cottage-level processing facilities and direct marketing linkages to final consumers, skipping all intermediary stages in the VC in order to increase profit margins for smallholders or collectors. Even if this can seem a solution under some circumstances, it will not be viable in many cases, and, as experience shows, most often does not survive without external project support. Finding realistic and sustainable solutions depends on a sound analysis of the costs and opportunities for market access involved, and of the functions fulfilled by different operators along the VC. As an example, the role of traders (see Box 6) is often underestimated, and hence the need to upgrade their capacities in the interest of reducing transaction costs and improving the overall competitiveness of the VC is usually neglected.

Box 6. Role of traders: linking suppliers with customers

The role of traders is often underestimated

Their core function in functioning VCs is to enhance trade links between the upstream (production) and downstream (processor, retailer, consumer) ends of the VC as specialized, dedicated traders and/or wholesalers. Fundamental tasks of traders, which may be difficult to be competently fulfilled by farmers, comprise, in the ideal case:

- identification and assessment of supply sources;
- identification and assessment of demand requirements;
- communication of quality and quantity requirements of customers to suppliers;
- provision of technical support (standards, supply calendar and timing);
- assembly of small quantities;
- cleaning, sorting, grading and packing according to customers' requirements;
- organizing transport and logistics;
- pre-financing production or harvest; and
- bearing the marketing risk.

Consequently, in many cases, it might be more sustainable to build capacities of traders to fulfil these functions efficiently and effectively than to encourage smallholders (or collectors) take on responsibility for the activities, in view of not only their key competencies, but also the transaction and opportunity costs involved. Having said this, it does not mean that farmers should in no case try to move further in the VC by integrating downstream functions. The intention of elaborating on these issues is more to raise awareness that any recommendation and any decision on integrating further functions at producer level have to be based on sound analysis of opportunities, challenges and costs, as well as realistic and realizable options.

In this line of thinking, Horna *et al.* (2007) concludes that whether farmers embark on downstream activities such as trading depends on diverse criteria, including harvest volume, availability of transport and investment needs. Furthermore, the decision may also depend on the season: during the high season,

Garden Egg producers in Ghana often trade themselves at nearby village markets, whereas during the dry season, when produce is short, farmers supply wholesalers who then sell in more distant markets. Daniel and Dudhade (2007) report that farmers in some locations in India may not find it profitable to process amla (*Embilica officinalis*) into dried candy, because of the investment and operation costs involved and the distance to emerging markets, to which small-scale farmers cannot establish direct market linkages.

Ultimately, decisions on whether or not to integrate up- or downstream functions should always be based on the expected return on investment (capital, labour). However, in the case of resource-poor collectors or small-scale farmers, return on investment refers not only to monetary income but also has to reflect the benefit of NUS for "livelihood support including ... employment, nutritional value, food supplements and other macro-level contributions such as medicinal use, timber and livestock fodder." (Kruijssen and Mysore, unpublished).

Improving VC governance as a basis for reliable business linkages

In a functioning market system, all VC operators have to fulfil their respective tasks within the VC, even if they do not always perform their roles to the mutual benefit of all business partners. Nevertheless, the mutual interest in establishing reliable market access and ensuring continuous supplies can be best achieved through ensuring equitable benefits for all VC partners. Otherwise, the business relationships will sooner or later break down due to supply or payment irregularities. To avoid this, effective VC governance structures have to be established. Gereffi *et al*. (2005) determine effective governance in VCs by three factors, to which the author adds an additional (fourth) feature:

- the amount of information that needs to flow along the VC in order to coordinate the various activities within it;
- the extent to which this information can be transformed so that the information can easily be transferred from one VC operator to another;
- the extent to which suppliers are competent to understand and translate the information into VC processes to meet the requirements placed upon them by their customers; and
- the willingness of business partners in the VC (in particular lead firms such as larger downstream processors and traders) to share benefits by paying fair prices in general and higher prices for superior quality grades.

General features of VC governance are summarized in Box 7.

Box 7. Features of VC governance

Power, learning and benefit relations in VCs and their effects on competitiveness

Power:
referring to the degree to which one firm or group of firms dominates the subsector. Asymmetrical power refers to the situation where one firm is able to exert significant influence over the quantity of goods traded or the price at which they are sold in the subsector. In contrast, symmetrical power (or a "win-win relationship") describes the situation where power is distributed in a more balanced manner among actors. Win-win relationships are preferable for sustained competitiveness in the subsector.

Learning:
referring to the way, in which innovation is encouraged and internalized throughout the subsector. The two main types of learning are:

- alternative markets – knowledge about alternative market opportunities, which tends to occur when the VC is not dominated by one buyer. Innovation is slow, but many firms will have access to information on alternative markets; and
- existing markets – knowledge and skills to produce according to the requirements of existing markets, which tends to occur when a single buyer dominates the VC. Innovation tends to be faster.

Benefits:
referring to the sources and distribution of benefits among firms in the VC. Major sources of benefits include:

- power asymmetry – larger firms benefit more than smaller firms;
- barriers to entry – larger and more established firms benefit more than smaller and newer firms;
- product differentiation – depending on the structure of the market, smaller firms can derive significant benefits;
- efficiency gains – small firms in particular can benefit greatly; and new or increased demand – depending on the market structure, all firms can benefit equally.

Source: USAID–microLINKS (no date)

With regard to win-win-partnerships as a precondition for sustainable business linkages, the CBD stipulates Access and Benefit Sharing (ABS) as one of three objectives (Article 1). ABS refers to the

> **"fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding." Furthermore, "Article 8(j) contains provisions to encourage the equitable sharing of the benefits arising from the utilization of knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for conservation and sustainable use of biological diversity."**

The importance of and the need for implementation of CBD in the respective countries of origin as well as in importing countries will be further discussed under the topics of national and international conservation and trade policies and enforcement (Section 4.3.3).

Possible measures to foster business linkages as a means to upgrading VCs and facilitating market access

Effective VC governance implies that business linkages in VCs need to be founded on long-term and trustful relationships, mutual benefit for all business partners (win-win relationships) and to include close communication and coordination, as well as inbuilt capacity development efforts. To promote governance of business linkages in this sense, VCD facilitators can take the following steps:

- assistance to assessing the performance of current and potential distribution channels (supplier or customer screening, or both);

- information about advantages or possible risks of different distribution channels or models of business relationships (from spot market, to contract farming, to joint ventures);
- support to acquiring the necessary skills and achieving economies of scale to establish business linkages with larger upmarket customers (e.g. processors, company canteens, hotels, restaurants);
- facilitation of business to business (B2B) meetings between suppliers and potential buyers to discuss opportunities for and modes of cooperation;
- facilitation of the development of a joint vision for business partners, common objectives and a joint strategy for market access, the use of biological resources and VCD;
- facilitation of cooperation with larger companies (e.g. producers of pharmaceutical products) to collect and make use of traditional knowledge;
- assistance in formalizing business relations (e.g. best practice in contract development, sample contracts) and mediation in the event of problems (arbitration);
- support to setting up the necessary information flow and communication structure, as well as stimulating capacities for efficient and effective use of the information;
- support to assessing needs for technical or managerial capacity development and for setting up embedded services provided by business partners in the VC (see Section 4.3.2.2); and
- empowerment of small-scale farmers and communities to defend their land rights and rights of resource use in negotiations with larger customers.

FURTHER READING

See also Chapter 3.

Nelson, J. 2007. Building linkages for competitive and responsible entrepreneurship: innovative partnerships to foster small enterprise, promote economic growth and reduce poverty in developing countries. United Nations Industrial Development Organization (UNIDO) and the Fellows of Harvard College.
Available online at: www.unido.org/file-storage/download/?file_id=68649

Schulenburg, F. 2006. Promoting business linkages – overview and tools. GTZ, Eschborn, Germany.
Available online at: www2.gtz.de/wbf/doc/SV_PSD_Promoting_Business_Linkages_0606.pdf

Shepherd, A.W. 2005. Associations of market traders: Their roles and potential for further development. FAO, Rome, Italy. Available online at: www.fao.org/ag/agS/subjects/en/agmarket/assocs.pdf

Shepherd, A.W. 2007. Approaches to linking producers to markets – A review of experiences to date. FAO, Rome, Italy. Available online at: www.fao.org/ag/ags/subjects/en/agmarket/linkages/agsf13.pdf

RELEVANT WEB SITES

See also Chapter 3

FAO – Contract Farming
www.fao.org/ag/ags/subjects/en/agmarket/contractfarming.html

FAO – Impact of Supermarkets
www.fao.org/ag/ags/subjects/en/agmarket/textbooks.html

FAO – Linking Farmers to Markets
www.fao.org/ag/ags/subjects/en/agmarket/linkages/index.html

FAO – Marketing/Agribuisness textbooks
www.fao.org/ag/ags/subjects/en/agmarket/textbooks.html

FAO – Market Research for Agroprocessors
www.fao.org/ag/ags/subjects/en/agmarket/research.html

4.3.1.3 Collective action (horizontal cooperation)
– a precondition for becoming strong business partners in the VC

To empower resource-poor collectors and farmers to become competent and strong business partners in the VC, it will be necessary to:

- improve their ability to take informed business decisions ('NUS-farming as a business');
- upgrade their ability to accomplish their VC functions efficiently and effectively;
- help them develop reporting systems for the use of resources (credence, traceability);
- strengthen their capacities to organize collective action (horizontal cooperation);
- support them to identify potential business partners (vertical cooperation); and
- facilitate their inclusion in VC decision-making processes (negotiation capacities).

This can best be achieved when farmers (or collectors) join forces. Collective action in this sense can be realized through informal or formal networking in groups like community-based organizations, farmer groups or other types of producer organization. Joint business or business-like activities are not limited to the level of farmers but play as well a role at the up- and downstream ends of the VC: associations of input dealers, traders or processors, and other types of business associations or joint ventures. Even if the promotion of collective action among farmers or collectors is a priority with a view to strengthening their position in the VC, horizontal cooperation should also be promoted among traders as well as small and medium enterprises, since such organizations can facilitate outreach and up-scaling of capacity development efforts along the VC.

The main objective of collective action is to achieve commercial advantages for network members through the establishment of:

- **a platform for internal cooperation:**
  for collective action and the provision of member-oriented services;
- **a platform for external cooperation:**
  for the facilitation of access to external services and the representation of member interests (private-public interface for advocacy and lobbying); and sometimes
- **a platform for vertical cooperation:**
  for the coordination and management of VCD.

Depending on the individual case, collective action may provide the following benefits for the network members:

- **input procurement:**
  opportunity to purchase input in bulk directly from wholesale outlets, access to better quality inputs from reliable sources, and improved negotiation power and scale to bargain for more favourable prices;
- **production and processing:**
  exchange of experiences and joint learning to raise productivity, improve quality (e.g. Good Agricultural Practices (GAP), Good Handling Practices (GHP), Good Manufacturing Practices (GMP)) or joint investments into larger-scale operations or value addition;
- **transport and logistics:**
  joint organization of collection points, grading, sorting and packing, as well as transport to convey produce to market places, construction of feeder roads to member's farms and/or collection points;
- **market access through integration into VCs:**
  enlarged product range, improved seasonal distribution of supplies and increased marketable volumes (scale) to establish linkages with wholesaling, processing, exporting companies or supermarkets, and to improve bargaining power;

- **access to services:**
  networks can jointly organize access to (and pay for) Business Development Services (BDS) such as training, advice, extension and research, as well as to financial institutions for credits and savings; and
- **advocacy and lobbying:**
  networks can jointly identify needs for improving political, administrative, legal and infrastructural framework conditions; establish linkages to community, district and national entities; and elaborate their positions for representing their interests.

Possible measures to support collective action as a means to strengthening the performance of VC operators

Mainly emerging from community-based organizations founded to primarily serve social objectives, organizational capacities have to be built to enable their transformation into business-oriented networks. However, trust among members and the degree of cohesion in the prevailing socially-oriented groups are often not sufficient to establish sustainable commercially-oriented relationships. Consequently, support is necessary to facilitate the development of strong groups capable of integrating into VCs. For sustainability reasons, these efforts should not be implemented in a top-down approach but should build on bottom-up initiatives reflected in existing social networks and cooperation linkages. In this sense, support to fostering sustainable groups and associations may extend to the following measures:

- **group cohesion and trust-building:**
  assistance to identify objectives based on common economic interests; identify 'optimal' size of groups and distance between group members as criteria for group cohesion; foster transparency among members; and facilitate success stories to gain commitment of members;
- **organizational structure and management:**
  assistance to establish democratic and transparent group management; to fulfil functions (board, management, financial, technical, etc.); to set up voluntary committees; to manage professional staff and voluntary contributions of members; to establish procedures for strategic decision-making; to manage finances and membership; etc; and
- **service capacities:**
  assistance to assess members' service needs, develop technical and managerial skills, develop facilitation skills (information, VCD facilitation, etc.); and to establish service offer (e.g. support to conserving and utilizing on-farm and off-farm genetic resources).

It is obvious that sufficient resources and time are needed to facilitate the development of such networks to the stage where the groups become willing and capable of jointly integrating into VCs. Support measures should be implemented in a participatory and process-oriented way, accompanying the groups through the entire process, from analysis to strategy building and to implementation. Capacity building in this context is not limited to training but involves the very important coaching of groups to translate theory into daily work routines. This is especially true where groups intend to establish collective marketing, for which strong group cohesion; competent, transparent and experienced group management; clear agreements, including provisions for sanctions in case of infringements; and a reliable joint understanding of the common goals are an absolute precondition for success and sustainability.

Consequently, groups will pass through a learning process of joint actions before collective marketing can be realized. However, in many cases, group marketing is not the only solution to smallholder challenges in accessing markets. Whether collective marketing is the best way for integrating collectors and small-scale farmers into VCs has to be decided on a case-by-case basis (see Section 4.3.1.2).

FURTHER READING

See also Chapter 3.

Dugue, M.J. & Le Coq, J.F. 2006. Pedagogical materials on Farmers' Organizations and Farmers' Organizations' support. CIRAD and CIEPAC. Available online at: www.cirad.fr/ur/index.php/politiques_et_marches/services_produits

FAO. 1995. The group enterprise book: A practical guide for group promoters to assist groups in setting up and running successful small enterprises. FAO Sustainable Development Department (SD). Available online at: www.fao.org/sd/PPdirect/PPre0018.htm

FAO. 1994. The group promoter's resource book: a practical guide to building rural self-help groups. FAO Sustainable Development Department (SD). Available online at: www.fao.org/sd/2001/PE0303_en.htm

FAO. 2001. The inter-group resource book: A guide to building small farmer group associations and networks; FAO Sustainable Development Department (SD). Available online at: www.fao.org/sd/2001/pe0701_en.htm

Robbins, P., Bikande, F., Ferris, S., Hodges, R., Kleih, U., Okoboi, G. & Wandschneider, T. 2004. Advice manual for the organization of collective marketing activities by small-scale farmers. Natural Resources Institute, Chatham, UK. Available online at: www.nri.org/work/farmergroupnov04.pdf

Ton, G., Bijmanand, J. & Orthuizen, J. 2007. Producer Organizations and Market Chains: Facilitating trajectories of change in developing countries. Wageningen Academic Publishers, The Netherlands. Available online at: www.wageningenacademic.com/pomc

KIT [Tropical Products Institute]. 2006. Chain empowerment: Supporting African farmers to develop markets. Available online at: http://smartsite.kit.nl/smartsite.shtml?id=SINGLEPUBLICATION&ItemID=1952&ch=FAB

RELEVANT WEB SITES

See also Chapter 3.

World Bank – Agriculture and Rural Development – Supporting Associations & Cooperatives. web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTARD/0,,contentMDK:20445127~pagePK:210058~piPK:210062~theSitePK:336682,00.html

4.3.1.4 Cooperation with corporate service providers (lateral cooperation) – sub-contracting VC functions to specialized companies

For reasons of capacity (mainly investment costs, labour requirements and skills), VC operators are usually not capable of fulfilling all VC functions but need to sub-contract corporate service providers for functions such as:

- transport and storage;
- sorting, grading, packaging; and
- drying, milling, etc.

Possible measures to support outsourcing of VC functions to specialized corporate service providers

In a bid to improving the performance and strengthening the competitiveness of the VC, it is also recommended to establish reliable linkages to the service-providing companies. Trustful long-term cooperation may result in better quality of services, better information exchange, and also more transparent service charge systems. Economies of scale achieved through collective action of producers (horizontal cooperation) may also provide a platform for the negotiation of lower service charges and better quality of services.

4.3.1.5 Quality assurance, certification and product branding and labelling – an asset for gaining a competitive edge over competing products

An estimated 7 million people per year are affected by food-borne illnesses worldwide. In many developing countries, weak food safety systems coupled with food insecurity aggravate social and economic problems, since traditional marketing systems pay little attention to product quality and food safety from the farm to the table. Most developing countries have established legal standards for common crops, but NUS tend to be ignored. Anyhow, even though legal standards exist on paper, they are usually not enforced. This can be shown by the case of African leafy vegetables (ALVs):

> **"Except for Uchumi Supermarket, which controls quality, the rest of the market actors simply buy and sell. Thus some of the healthiest looking ALVs may be produced in the sewage around the city. This may cause a health risk, especially with respect to heavy metals."** (Irungu 2007)

In contrast, quality assurance by operators along the VC and quality control by customers and public inspection are taken for granted in developed countries, for both domestic produce and imports. Consequently, producer-exporters in developing countries are nowadays obliged to comply with international legal standards and also private industry and trade standards. At the same time, even if national legal standards are in place (as is the case in many developing countries), they are rarely known by VC operators (information problem) and almost never implemented (enforcement problem). Nevertheless, in developing countries, incidents of threats to public health, increased awareness of wastage due to unnecessary spoilage along the supply-to-marketing chain, as well as ever-stricter control of produce quality by supermarkets, contribute to creating awareness of food quality and safety issues. Yet, the market in most developing countries is split into at least three categories:

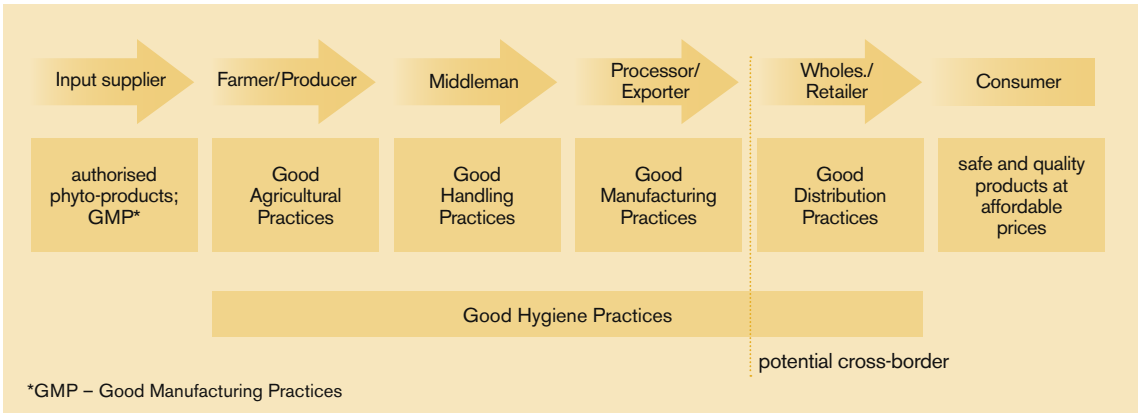
- growers and traders involved in the export trade have to comply with ever more strict requirements, both international legal standards and international private trade and industry standards;
- products supplied to supermarkets in the domestic market are more strictly controlled with regard to product quality and food safety; while
- operators distributing through other local or regional channels usually apply no standards.

In parallel to legal provisions (see Section 4.3.3), standards may also be introduced by the private sector (e.g. supermarkets, processors) in a bid to homogenize product attributes and to facilitate the coordination of market transactions. Private standards are also applied to ensure quality and food safety along the VC, from inputs through to final consumption. Such industry self-control quality assurance systems aim at creating better value through the improvement of production processes and of product quality, as well as the reduction of wastage.

Industry self-control quality assurance systems along VCs

To adapt to ever-increasing market requirements and in order to proactively open emerging market outlets (supermarkets) or up-market consumer segments (e.g. health-aware urban consumers or the tourism sector), VC operators should, in their own commercial interest, develop local standards and certification schemes, and implement industry self-control quality assurance systems along the VC. Establishing a harmonized system of good practices will contribute to making product markets more transparent; to improving the homogeneity, quality and safety of products; and to facilitating communication and coordination of transactions at VC nodes. Furthermore, price differentials could be introduced, giving an incentive for producing higher quality produce.

Figure 7. Industry self-control quality assurance along the value chain



Source: Will (2007)

Quality assurance in this sense starts with the provision of appropriate inputs, especially chemicals such as pesticides and fertilizers, as well as natural ingredients and additives in food processing, or products for cleaning processing equipment. Suppliers of inputs also need to upgrade their capacities for advising their clients on the selection of the right product for the right purpose, and on the appropriate use of chemicals.

It can be expected that industry self-control systems will have the following impacts:

- producers, traders and processors (VC operators) will improve market access, increase productivity and may reduce the frequency of state inspection, provided the system is harmonized with the public control system;
- consumers will benefit from the increased offer of good quality and safe products, and the increased awareness of the need for consumer protection; and
- the public sector will benefit from reduced frequency of official controls and inspections, and from improved provisions for assuring public health.

As far as local conditions allow, harmonization with international or regional certification schemes would eventually facilitate recognition of the local standard in international markets. In particular, when it comes to promoting special attributes, such as nutraceutical or pharmacological properties of NUS, standardization of the product is critical in order to facilitate commercialization and to avoid unsubstantiated claims and fraud.

Possible measures to develop industry self-control quality assurance systems along VCs

Realizing quality-assurance systems and certification schemes in developed countries is already a challenge. It is even more so in developing countries, where business relations are weak, service providers are not innovative and the legal and institutional frameworks are not conducive for implementing such a project in a joint private-public effort. For the success of such undertakings, the following factors are decisive:

- the initiative (ownership) stays with the VC operators, with private-sector institutions (e.g. associations) as owner of the standard;
- the objective, importance and reach of the system, as well as the roles and responsibilities for the establishment and management of the system are clearly defined;

- the planning and budgeting for the establishment and the sustainable operation of the system is realistic;
- all private and public partner organizations are willing and capable to contribute to the realization of the system (e.g. certification, laboratories, inspection services); and
- strategic alliances between the private and public sectors and other relevant stakeholders (e.g. assistance agencies) have been established for setting up the system and assuring its operations.

Before embarking on activities, the *de facto* need for establishing an industry self-control system, the factual possibilities of realizing such an ambitious undertaking, and the willingness and capacities of private sector organizations to assume ownership of the system have to be assessed. The process of establishing the quality assurance system consists of four elements:

- setting up of transparent systems for product and process certification, as well as for the monitoring and enforcement of the standard, based on Good Practices or Codes of Practice;
- transfer to all operators at all VC stages of the technical, management and marketing capacities necessary to comply with the standards, as well as to strengthen the effectiveness and efficiency of the quality assurance system;
- support to the public sector food safety control system to harmonize their control systems (shift to process- and risk-oriented end-product control), as well as to harmonize their technical and managerial capacities with the industry self-control system; and
- sensitization of final consumers to establish confidence in the quality label and sales promotion.

Product differentiation through branding and labelling

Private standards may be used to differentiate products from the offers of competitors. By doing so, VC operators try to increase consumer loyalty, thus aspiring to achieving more stable demand and a price premium. Certification of compliance with such private standards is a precondition for using the brand name or label. In this line of thinking, Irungu (2007) reports that

> **"Product differentiation and labelling is non-existent in the ALV market… Labelling the produce … may further enhance consumer confidence when purchasing the ALVs and probably raise the producer prices".**

In her study, Irungu refers to so-called geographical indications (labels) allowing consumers to identify the origin of produce, which is linked to a specific quality attributable to the provenance. Since NUS are often closely linked to specific origins, traditional values and indigenous knowledge, geographical indications (GI) could be a valuable tool for product differentiation to promote recognition by consumers, and hence to secure market shares and possibly achieve more stable and possibly more profitable returns.

> **"Geographical Indications or Designations of Origin … are open collective brands owned by producer associations who use the product's origin and specific quality characteristics as positive features of identification."**
> (Evolve Consulting & terra fusca 2007)

The European Union, for example, distinguishes between Protected Designations of Origin (PDO), Protected Geographical Indications (PGI) and Traditional Specialty Guaranteed (TSG). While PDO and PGI both refer to physical, geographical and cultural attributes, PGI are explicitly associated with production in specific locations, whereas PDO are associated with the entire VC from production to processing and packaging in a defined geographical area. TSG in turn, are not related to the product's provenance but to the traditional character of the product (recipes, production technologies, etc.). The case study in Box 8 illustrates the use of geographical indications.

Box 8. Quality assurance, certification and labelling: Case study of the Code of Conduct for Orthodox Tea Producers and Exporters of Nepal

Industry self control and branding for better access to export markets

Background

With an average of 1 500 t/yr, Nepali Orthodox Tea (OT) makes up 15% of the total volume of Nepali tea production. About 5 600 smallholders account for two-thirds of OT production. As a high quality product, the tea has a good market potential. However, the export marketing channels are extremely weak, with large quantities passing through Indian blenders and brokers.

The VC stakeholders share the vision of developing a niche for Nepali Orthodox Tea in the international market, aimed at obtaining premium prices of 30% above average and expanding direct exports from the current 200 t/yr to 600 t/yr, while guaranteeing fair-trade conditions for small-scale farmers.

Support measures

- organizational development:
  facilitating association and cooperative building, and joint export marketing by producers;
- marketing support:
  developing a brand strategy, facilitating participation in trade fairs, linking with importers;
- quality management:
  introducing a code of conduct and improving production systems; and
- accompanying measures:
  facilitating microfinance services to foster private investments in smallholder plantations.

Code of Conduct for Orthodox Tea Producers and Exporters of Nepal

An agreement on a joint Code of Conduct was reached after Nepali tea exporters understood that they have a common interest with smallholder producers in responding to target market demand. The Code is an initiative of the "Himalayan Tea Producers Cooperative", formed by 13 (out of a total of 15) factories blending Orthodox Tea. The Code regulates production, processing and standards for worker health and safety. GTZ provides technical assistance to the members of the Cooperative to establish embedded services (see 4.3.2.2) for farmers.

The Code of Conduct has become the basis for the success of the new trademark "Nepal Tea", which is being used for joint export promotion. To ensure compliance with the Code, only exporters who have signed and are implementing the Code of Conduct are allowed to use the "Nepal Tea" logo.

Source: Pant (2006)

Possible measures to develop certification and branding and labelling schemes

Even if the benefits of establishing standard and certification schemes seem to be obvious, costs of developing and operating them in a sustainable way are considerable. Consequently, it is necessary to assess realistic costs and realistic benefits for VC operators prior to embarking on the promotion of certification schemes. This is especially true in an environment in which the majority of both private and public stakeholders is neither aware of potential benefits nor of related costs. Evolve Consulting and terra fusca (2007, adapted by the author) list the following administrative, organizational and technical requirements involved in setting up schemes of geographical indication:

- compilation of unique characteristics or a unique reputation based on distinctive geographical, cultural or utilization values;
- identification of producers or producer associations as owners of the standard;
- development of a marketing strategy based on an analysis of the market potential;
- development of quality requirements (quality attributes laid down in a standard);

- support of national administrative and legal authorities (see also Section 4.3.4);
- assessment of the potential impact on livelihood systems, agro-biodiversity conservation and sustainability with regard to potential trade-offs[11]; and
- alignment of the promotion of local specialty products with regional or national marketing and promotion strategies.

FURTHER READING

Evolve Consulting and terra fusca. 2007. Concept Note: Development of Protected Geographical Indications or Designations of Origin for exploring niche markets and creating income opportunities for smallholding farmers in Eastern Africa.
Available online at:
www.amberfoundation.com/?&download=Concept%20Note%20Prospects%20of%20PGI%20in%20Eastern%20Africa.pdf

Springer-Heinze, A. (editor). 2007. ValueLinks Manual – The Methodology of Value Chain Promotion – Module 9: Introducing Social, Ecological and Product Quality Standards. Deutsche Gesellschaft fuer Technische Zusammenarbeit (GTZ). Available online at: www.value-links.de/manual/index.html

Will, M. & Guenther, D. 2007. Food Quality and Safety Standards as required by EU Law and the Private Industry – With special reference to the MEDA countries' exports of fresh and processed fruit & vegetables, herbs & spices – A Practitioners' Reference Book. 2nd revised and up-dated edition. GTZ, Eschborn. CD-ROM.
Available online at: www2.gtz.de/dokumente/bib/07-0800.pdf

RELEVANT WEB SITES

European Commission – Food Quality Schemes Project
foodqualityschemes.jrc.es/en/index.html

European Union (EU) – Agriculture and Rural Development – PDO, PGI and TSG
ec.europa.eu/agriculture/foodqual/quali1_en.htm

ISEAL Alliance – International Social and Environmental Accreditation and Labelling Alliance
www.isealalliance.org/

World Intellectual Property Organization (WIPO) – Geographical Indications
www.wipo.int/meetings/en/topic.jsp?group_id=14

[11] Trade-off refers to the phenomenon that gains in one respect (e.g. increasing returns from specific NUS) may result in losses in other respects (e.g. change in land use patterns, such as crowding out of other NUS in the farming system resulting in imbalanced nutrition or food insecurity of farm households, or degradation of local ecosystems, or both). This calls for taking informed decisions before embarking on a venture with due consideration of potential positive and negative effects.

4.3.1.6 Innovation capacities
– an asset for sustainable market access

"Competitiveness is not achieved once and for all, and increased competitiveness pressures in the global economy put a premium on the ability to improve performance." (Humphrey and Oetero 2000)

Even if this quote refers to exports, it is equally valid for local markets, and especially for the promotion of NUS: continuous market access depends on sustained competitiveness, and this in turn depends on the innovation capacity of the VC operators. In other words, innovation is necessary to be able to compete in ever-changing markets, in which developments are driven by changing consumer preferences, emerging competitors and substitute products, etc. Additionally, technological innovations are the basis for increased value addition.

Innovations can take place at all stages of the VC, for example:

- selection of improved varieties with a view to increasing yield capacities, improving adaptability to locations, meeting consumer preferences, improving shelf-life, etc;
- development of improved production technologies aimed, for example, at increasing productivity and improving the quality of products;
- development of improved harvest and post-harvest technologies, coupled with better transport and logistics to ensure post-harvest quality and to reduce wastage, etc;
- development of new processing technologies for product diversification, utilization of by-products, increased productivity, etc; and
- development of innovative marketing concepts and product diversification aimed at creating demand or opening new market segments, or both.

Innovation in this context does not necessarily refer to inventions. More likely, innovation in the context of NUS-VCD refers to safeguarding traditional knowledge, or transferring knowledge and technologies existing elsewhere but new to the operators in a certain region.

In the context of VCD, participatory approaches to innovation, linking traditional knowledge with R&D approaches prove to be most promising, in particular with regard to identifying appropriate innovations, adapting them to the prevailing conditions and achieving higher adoption rates[12]. The participatory approach towards VCD offers an ideal framework for seizing opportunities for value addition in this sense, since:

- the interactions among VC operators and with research institutions as service providers generate innovations and facilitate the diffusion of innovations; and
- the innovations introduced by the private sector (through the VC operators) complement publicly financed R&D activities

Possible measures to support innovation for sustained market access

With a view to mobilizing the innovation potential of private and public stakeholders involved in NUS-VCD, possible measures include:

- identification of traditional farming systems and indigenous knowledge with special regard to endangered/vanishing intra- and inter-specific NUS;

[12] The rate of adoption is the relative speed, at which innovations are taken up by shares of the target group. The rate of adoption depends on the competitive advantage of the innovation compared to currently applied methodologies or technologies and alike, the probability of improving the target group's performance and/or livelihood (e.g. productivity, income), the compatibility with the prevailing situation of the target group as well as on the complexity of the technology proposed.

- analysis of the value addition potential and of the possibilities to utilize by-products, with a view to developing new products (product differentiation, product diversification);
- analysis of existing technologies and needs for knowledge and technology transfer to foster innovation capacities;
- development of the capacity of VC operators and VC supporters to apply participatory tools for the identification of innovations (e.g. Rapid Appraisal of Local Innovation Systems – RALIS);
- access to information, for example through setting up information systems on new technologies and product innovations related to NUS-VCD;
- access to R&D funds to facilitate farm-led or industry-led innovation, and participatory plant breeding[13]; and
- lobbying for improved framework conditions and incentive schemes for industry-financed R&D.

FURTHER READING

Meyer-Stamer, J. & Schoen, C. 2005. Rapid Appraisal of Local Innovation Systems (RALIS): Assessing and Enhancing Innovation Networks. Mesopartner, Duisburg and Munich, Germany.
Available online at: www.meso-partner.de/publications/mp-wp2_RALIS.pdf

Scheuermeier, U., Katz, E. & Heiland, S. 2004. Finding new things and ways that work – A manual for introducing Participatory Innovation Development. LBL, Swiss Center for Agricultural Extension, Lindau, Switzerland. Available online at: www.prolinnova.net/Downloadable_files/Agridea%20part_I.pdf

4.3.1.7 Demand creation through promotion and consumer education
– only products bought by consumers translate into income for VC operators

The need for demand orientation of VCD cannot be challenged, since at the downstream end of the VC the final products have to satisfy the end-users' requirements and preferences, thus stimulating consumer decisions to buy and pay for the products. Then, and only then, will all the efforts of each and every upstream partner in the VC translate into income.

Promoting NUS may be easier where promotion can capitalize on traditional knowledge of uses, recipes and culture. But often, NUS are neglected and underutilized because traditional consumer patterns were lost with urbanization, where the plethora of local, regional and international food products crowded out traditional food items. Such traditional food items are frequently perceived as food for the poor, or as not being suitable for modern culinary art. Furthermore, the advancement of technology, the advent of convenience food in the market, and aggressive marketing by global players also make the consumer more responsive to advertising campaigns, which are usually beyond the financing capacities of VC operators trying to find a market for NUS.

Consequently, there is an urgent need to create demand for NUS by promoting their specific values, such as nutritive and health properties (e.g. balanced diet, specific medicinal uses), and also by appealing to the heritage of cultural values, stressing the contribution of the utilization of NUS to biodiversity conservation, to the livelihood of local communities and the sustainable use of natural resources.

[13] Participatory Plant Breeding (PPB) refers to the fact that both farmers and professional plant breeders are a source of information and knowledge complementing each other. PPB refers to R&D approaches involving different stakeholders (farmers, scientists, breeders, etc.).

Irungu (2007) confirms that the growth of the market for African leafy vegetables in recent years is a result of demand creation through promotional efforts, in combination with consumer education:

> **"The growth of this market has been greatly influenced by an increased consumer demand that has been caused by a number of factors. These include promotional strategies of local NGOs and international organizations, increased health awareness and consciousness of Nairobi dwellers, effects of HIV/AIDS, and improved ALV presentation in supermarkets and upmarket groceries."**

Possible measures to support demand creation through promotion and consumer education

Efforts to create demand through promotion and consumer education should focus on increasing awareness of the values of NUS food items (see above) in general and their contribution to a balanced diet, and developing consumers' skills in preparing and using specific NUS correctly.

In the absence of larger private actors interested in promoting NUS, consumer awareness campaigning is the task of joint efforts of consumers' associations (where they exist), public conservationist and health services, NGOs and development partners. Close coordination with the private sector is necessary with both VC operators and their respective producer, trader and processor associations to create awareness of the need for and to develop capacities for continued promotional efforts.

Which institutions might play a role in such activities and what measures might contribute to educating consumers will be further discussed in Section 4.3.2.4.

4.3.1.8 Case study at the level of VC operators (micro-level) – facilitating market access for small-scale farmers

Box 9 sheds light on successful approaches to building structures and developing capacities of VC operators, with special focus on strengthening the position of small-scale farmers as competent and reliable business partners in VCs.

Box 9. Facilitating market access for small-scale farmers: Case study of the market development for African leafy vegetables in Nairobi, Kenya

Balancing efforts to promote production and creating demand

Starting point
Despite their importance with regard to traditional farming, health and nutrition, income and livelihood systems, as well as biodiversity conservation, only a few species of African leafy vegetables (ALVs) are produced and consumed in Kenya. The VC analysis revealed that ALVs market development is more positively related to wholesale and less to retail operations, as well as positively to the involvement of women and external support from NGOs. VCD has been supported over a decade by Farm Concern International (financed by various international organizations), ensuring consistent approaches and long-term strategies.

General VCD support
- establishment of a village gene bank, seed bulking and seed supply to farmers;
- development of good agricultural practices;
- development of recipes; and
- promotion through public awareness campaigns (trade fairs, supermarket exhibitions, press and electronic media).

Collective action (horizontal cooperation)
- capacity development for self-organization of producer groups;
- facilitation of producer groups to ensure quality and consistent, regular supplies; and
- promotion of ALVs through trader networks to disseminate information on increasing demand for ALVs.

Market linkages (vertical cooperation)
- facilitation of direct linkages between farmer groups and supermarkets or groceries to open new market segments (upper and middle class) in Nairobi; and
- integration of smallholder farmer groups into the network of preferred suppliers of the supermarkets.

Financial intermediation
- 'factoring facility' by which farmers are paid by the NGO directly after delivery to the supermarket, while the NGO bridges the 60-day payment period of the supermarket.

Achievements to date
Since the mid 1990s, the market for at least some varieties of ALVs in Nairobi has grown significantly, income has been generated for members of producer groups, social networks have been enhanced, and biodiversity has been conserved. This predominantly demand-driven development is mainly due to:
- promotional campaigns that increased consumer awareness of the nutritive value of ALVs;
- introduction into supermarket shelves and groceries, raising the status of ALVs, formerly perceived as food for the poor;
- profits from currently fast and high returns increasingly turning the attention of traders to ALVs; and
- increased production in close-to-market periurban areas, as well as in traditional production locations.

Source: Irungu (2007)

4.3.2 Building structures and capacities at the level of VC supporters (meso-level)

As described in the preceding sections, VC operators have to develop skills in many fields. It is evident that they need both non-financial and financial support services to enable them upgrade their performance and strengthen VC competitiveness.

The case study on the African Garden Egg confirms that

"the performance or efficiency of a market chain is a result of how well the actors in the chain are organized and also how well the chain is supported by a range of services that are also called business development services ... It is recognized that market performance can often be increased more effectively by improving or gaining access to these services, rather than assisting a particular group of actors in a market chain." (Horna *et al.* 2007)

National and international programmes and many NGOs are assisting NUS-VCD in this sense. However, while resources of such projects may be enough to pilot-test interventions, they are usually insufficient for substantial outreach. To achieve broad impact, it is thus necessary to develop structures that are capable of taking up innovative approaches to service provision, disseminating them at the local level and sustaining such services beyond the intervention of the initial project.

4.3.2.1 Business development services
– fostering the development of the service market for NUS-VCD

Since the competitiveness of VCs depends on the performance of the operators at every stage of the VC, and the competitiveness of the final product corresponds to the capacities of the weakest link in the chain, it is obvious that VCD requires sustainable structures capable of transferring knowledge and technologies along the entire VC.

Non-financial support services are usually referred to as Business Development Services (BDS), which are defined by the Committee of Donor Agencies for Small Enterprise Development (2001) as

> **"non-financial services that improve the performance of the enterprise, its access to markets, and its ability to compete".**

According to today's understanding – after liberalization of agricultural markets and in the context of VCD – the scope of BDS not only extends to small and medium enterprises but also to the small-scale farming sector.

Apart from research services, though, the case studies (on which the present guidelines draw) give little evidence of the role of BDS for sustainable NUS-VCD. Arguing that there are no services available to the resource-poor, most projects and NGOs neither put enough effort into identifying and supporting existing basic services nor effort into facilitating the emergence of local service providers that could support VC operators beyond the lifespan of a project.

However, the Committee of Donor Agencies for Small Enterprise Development (2001) comes to the conclusion that

> **"many kinds of BDS in developing countries may not be easily visible, particularly to donors and other outsiders. Recent research indicates that BDS are already being provided sustainably to very small enterprises on a for-profit basis. This local grassroots BDS provision is often ignored by the development community due to the significant cultural and financial divide between for-profit providers and donors. Thus, statements which have often been made in the past, indicating that the provision of BDS by the private sector is negligible, should be revisited, and treated with some caution."**

Developing the BDS market

However, while building on these nucleus services, the service market (demand for and offer of BDS) certainly needs upgrading in most developing countries:

- the BDS-offer has to become more efficient and demand-oriented, whether offered by private or by public BDS providers; and
- the (existing) BDS-demand needs to be revealed by assisting VC operators to assess their service needs, identify the potential benefits linked to service provision, to access BDS providers and to express their needs.

Traditional approaches of assistance organizations and governments often distorted (and some still do so) market-oriented BDS development by directly providing services via public institutions, projects or

NGOs, or by subsidizing service delivery to an extent that self-help capacities cannot emerge and private service providers are crowded out for lack of competitiveness. Even worse, once the assistance agency or government projects come to an end, assistance ceases without leaving structures that could maintain activities. In this context, it is often argued that the resource-poor are not capable of paying for services. This problem, however, may be solved either through a sound assessment of costs and benefits, illustrating concrete benefits from paying for good quality services, or through collective access to BDS providers as a group sharing the costs.

Types of non-financial services

BDS are delivered in the form of advisory services, training, consultancy, access to information, R&D and technology transfer. With regard to technical content, BDS can include:

- **R&D:** e.g. on market potential of NUS, on improved varieties, on adapted technologies, on good practices in collection, *in situ* conservation, on-farm breeding, multiplication and storage of seeds, good production, handling and processing practices;
- **information services:** e.g. Market Information System (MIS)[14], including information on prices, consumer trends, market developments, competitors, technologies and standards;
- **marketing and management assistance:** e.g. business skills development, business linkage promotion, product development, price and distribution strategies and promotional campaigns;
- **technical assistance:** e.g. production management, processing technologies, transport and logistics technologies, and management of quality assurance schemes;
- **organizational development:** e.g. vision, mission, structures, strategies and service offer of farmer groups and business associations;
- **certification and laboratory services:** e.g. for cost-effective certification and analysis of pesticide residues according to international best practices; and
- **advocacy or lobbying for the interests of VC operators:** e.g. for appropriate legislation for the collection of wild species, for improved road and market infrastructure, or for incentive schemes.

'Research needs' provides an example for the diversity of services required for NUS-VCD, which goes far beyond the traditional understanding of research in the context of biodiversity conservation. Depending on the individual case, research needs at different VC-stages may include:

- **research on marketability:** to "identify differentiating and marketable properties of varieties" (Kruijssen and Mysore, unpublished) with a view to identifying benefits and messages that can be used for promoting production, processing and consumption of the product in question;
- **research on markets and consumer trends:** to assess market potential; to identify competitive advantages; to evaluate different marketing channels; to identify consumer preferences and market segments; to be able to respond to consumer trends through continuous innovation; etc;
- **research on potential uses:** to identify opportunities for product diversification through grading, packaging, processing or similar; to identify opportunities for utilizing by-products; to assess nutritional and medicinal properties; to develop recipes; etc;
- **research on varieties:** to increase yields; to reduce susceptibility to diseases; to improve the shelf-life of perishable products; to reduce the effects of seasonal fluctuations through, for example, earlier or later bearing varieties; to respond to consumer preferences; etc;

[14] Including the use of modern communication technologies such as mobile phones for price information and even internet for virtual communities of practice.

- **research on technologies:** to introduce improved crop management practices and processing technologies aimed at increasing productivity and quality; to identify opportunities for intercropping in orchards to increase benefits from NUS; to reduce wastage through improved harvest and post-harvest technologies, including transport and logistics; etc; and
- **research on biodiversity indicators through remote sensing:** to identify geographical coverage of NUS, threats to biodiversity and opportunities for commercial use; to assess indicators for market access (infrastructure); and human development indicators to assess potential for exploitation and market opportunities.

The case studies provide evidence on this diversity of research needs:

- **research on product diversification:**
  "In Turkey, there is no awareness yet of emmer (*Triticum dicoccon*) properties and emmer market potential. The food industry is looking for natural resistance starch properties in cereals, so the private sector may get interested in emmer, if there was a way to prove its properties with sound research" (Giuliani *et al.*, unpublished);
- **research on the potential use of by-products:** Kokum (*Garcinia indica*) is primarily used to produce juice from the pulp, but as by-products, oil can be extracted from the seed for use as edible oil or in the cosmetics industry, and medicinal products can be derived from the rind (Kruijssen and Mysore, unpublished);
- **research on breeding:**
  "Even though Garden Egg (*Solanum aethiopicum*) is highly demanded locally and has export potential, no official variety has been bred and released for commercial cultivation. The availability of formal varieties would set some quality standards, critical for export success. Local consumers could as well benefit from a better Garden Egg quality" (Horna *et al.* 2007); and
- **research on technologies:**
  "Most of the interviewed farmers reported that they are planting less and less emmer ..., though the production is sometimes not enough for their household needs. The major constraint for increasing production is the high labour demand."
  Furthermore, "The ... constraints are ... the great labour demand for threshing, handling and processing" (Giuliani *et al.*, unpublished). Aspiring to conserve emmer, there is hence a need for research into improved production, handling and processing technologies to reduce labour requirements.

Further particular BDS for NUS-VCD

Features of services that are specific to the development of VCs of NUS include:

- **community-based processing, selection and storage facilities:** "community seed banks are local institutions that conserve and maintain access to locally adapted seed and planting materials for farmers." (Almekinders, no date); and
- **seed fairs:** providing opportunities for farmers to exhibit their seed and planting material, to exchange experiences of the value of certain species and varieties, as well as on production technologies.

Types of BDS providers

Services may be provided by private individuals, companies or institutions; by public services or utilities; or by NGOs if there are neither private nor public providers capable, willing or present at local level. Private providers of services may be individuals (offering services such as ploughing, spraying, transport, grading or packing); groups of individuals (e.g. farmer groups, business associations); private companies (e.g. processing or consulting companies); training institutions, laboratories and certification bodies. Public service providers may be extension, R&D services, farmer field schools, colleges and universities, community and health services, inspection services, agencies for the promotion of local and regional economic development, export promotion agencies, or providers of (in most countries) public goods such as electricity, water and telecommunication. Often, charity NGOs also provide services, and many of them have recently also shifted to supporting business development in rural and urban areas. The features of the main types of BDS providers are described in Box 10.

Box 10. Classification of BDS providers

Providers of non-financial services (BDS)				
TYPE	PRIVATE		PUBLIC-PRIVATE	PUBLIC
	Firms, individual enterprises	**Professional non-profit organizations**	**Professional organizations**	**Governmental institutions**
Legal entity	Corporation according to civil law, limited liability company, shareholder company, etc.	Producer organization, association, federation, foundation, non-profit company	Public corporation	Ministry department, Sub-ordinate administrative unit, Community services, etc.
Legal basis	Commercial law, limited liability company law, corporation law, etc.	Association law, federation law, NGO law, etc.	Chamber law, agricultural chamber law, etc.	Special laws (investment law, agricultural law, etc.).
Examples	• Input suppliers • Embedded services provided by processing or exporting companies or large farms • Consulting companies • Training institutes etc.	• Producer organizations (PO) • Trader organizations (TO) • Other business associations, federations, foundations etc.	• Chamber of industry and commerce • Chamber of agriculture • Association of chambers etc.	• Social infrastructure (education, training, health) • Economic infrastructure (road network, markets) • Extension • Research laboratories etc.
Typical tasks	Consulting and training in: • Management • Production and processing techniques • Marketing and distribution Supplies: • Inputs • Equipment etc.	• Representation of members' interests (lobbying) • Development of VCD strategies • Development and enforcement of industry codes of conduct and standards • Consultancy and training services etc.	• Representation of sector interests • Consultancy and training • Realization of sovereign functions delegated by the government etc.	• (Sub-)Sector development as part of economic development • (Basic and higher) education • Extension services • Scientific research • Economic infrastructure etc.
Goals and interests	• Realization of profits • Strengthening of company competitiveness	• Representation of sub-sector and VC interests • Strengthening of VC competitiveness	• Representation of sub-sector interests • Strengthening of sub-sector competitiveness	• National and subsector economic development • Employment creation • Increase of national tax income
Financing	• Sale of (commercial) services • Embedded services: payment may be effected through deduction from purchase price (e.g. raw material price)	• Membership fees • Sale of (commercial) services • Sponsoring • Donations	• Compulsory membership fees • Income generated from delegated sovereign functions • Sale of services	• State budget • Special levies • Administration charges

Source: Adapted from Winkler (2004: 12)

Possible measures to support BDS market development through demand creation and service orientation to NUS-VCS

When it comes to strengthening the service market, it is in general recommended to develop capacities within existing structures rather than to create new ones. In parallel to capacity development, it is necessary to initiate change management in these institutions to accommodate the paradigm shifts described in Section 4.2. Only then will these institutions will be capable of offering competent services and, in the long run, of sustaining and further developing the services on offer.

Aiming at developing sustainable services for the development of competitive NUS-VCs, interventions should focus on building structures for sustained BDS by:

- assisting VC operators, starting from small-scale farmers through traders, up to processors and retailers to recognize their BDS requirements, to gain access to potential BDS providers, to hold service providers accountable for the quality of the services provided, and–within the bounds of their economic possibilities–to pay for services received; and
- assisting private and public BDS providers to adapt their offer in response to market signals of VC operators and to (further) develop their capacities, so as to enable them to competently satisfy the demand of VC operators while accepting accountability for the quality of the services provided;

The development of the BDS market for NUS-VCD comprises the following steps:

- analysis of the BDS requirements at all stages of the VC forms an integral part of the VC analysis, ensuring that critical constraints to BDS for NUS-VCD will be addressed;
- inventory of existing private and public service providers and NGOs, including analysis of their respective strengths and weaknesses, service gaps and capacity development needs;
- analysis of cost and benefits from the point of view of potential BDS clients to assess concrete benefits versus service charges in view of creating demand for BDS; and
- analysis of cost and benefits from the point of view of the service providers to assess the BDS market potential versus market development costs and development of business plans.

Based on these findings, a concept for the development of the BDS-market can be developed aiming at:

- professionalizing the BDS-offer through capacity development for improved service quality and accountability; organizational development with the objective of developing sustainable BDS; coupled with coaching and mentoring to translate theory into BDS-routine; and
- creating demand for BDS through building capacities of potential clients to recognize the likely benefits of BDS, to assess their service needs, to access and select service providers according to the needs identified, and to hold service providers accountable.

FURTHER READING

See also Chapter 3.

Almekinders, C. No date. Farmers as bankers: Community seed banks. GTZ Sector Project "People and Biodiversity in Rural Areas" (Unit 45). Available online at: www2.gtz.de/agrobiodiv/download/Themenblaetter/Saatgutbanken_engl_05.pdf

Almekinders, C. No date. Markets make a comeback: Diversity displays and seed fairs. GTZ Sector Project "People and Biodiversity in Rural Areas" (Unit 45). Available online at: www2.gtz.de/agrobiodiv/download/Themenblaetter/Saatgutmaerkte_engl_05.pdf

Chipeta; S. 2006. Demand Driven Agricultural Advisory Services. Neuchatel Group, published by GTZ and SDC. Available online at: www.neuchatelinitiative.net/english/index.htm

Committee of Donor Agencies for Small Enterprise Development. 2001. Business Development Services for Small Enterprises: Guiding Principles for Donor Interventions; Washington. Available online at: www.bdsknowledge.org/dyn/bds/docs/BDS%20GPs%202001%20English.pdf

FAO. 2006. Community Diversity Seed Fairs in Tanzania: Guidelines for seed fairs. FAO LinKS project – gender, biodiversity and local knowledge systems for food security. Report no 51. Available online at: ftp://ftp.fao.org/docrep/fao/009/ag387e/ag387e00.pdf

Miehlbradt, A.O. & MacVay, M. 2003. Seminar Reader – Developing Commercial Markets for Business Development Services – BDS Primer. Small Enterprise Development Programme of the International Labour Organization. Available online at: www.bdsknowledge.org/dyn/bds/docs/BDSPrimer2003E.pdf

Neuchatel Initiative. No date. Review of Experiences in Market Oriented Agricultural Advisory Services – A Discussion Paper. Draft. Available online at: www.neuchatelinitiative.net/english/documents/MOAASreportdraftforVienna.doc

Winkler, G. 2004. Promoting Trade Associations in South Eastern Europe – Challenges and Experiences. GTZ (editor). GTZ, Eschborn, Germany. Available online at: www2.gtz.de/dokumente/bib/05-0076.pdf

RELEVANT WEB SITES

See also Chapter 3.

Business Development Services (BDS) Forum
www.bds-forum.net/

Donor Committee on enterprise development
www.bdsknowledge.org

FAO – Agricultural Market Information Services
www.fao.org/ag/ags/subjects/en/agmarket/agmarketinfo.html

FAO – Marketing Extension
www.fao.org/ag/ags/subjects/en/agmarket/extension.html

FAO – Market Research for Agroprocessors
www.fao.org/ag/ags/subjects/en/agmarket/research.html

FAO – Sustainable Development – SD Dimensions – Rural organizations
www.fao.org/sd/in3_en.htm

Global Farmer Field School – Network and Resource Centre
www.farmerfieldschool.info/index.php?option=com_frontpage&Itemid=1

GTZ – Knowledge Systems for Rural Areas
www.gtz.de/en/themen/laendliche-entwicklung/6688.htm

The Donor Committee for Enterprise Development
www.bdsknowledge.org/dyn/bds/bdssearch.home

The Neuchatel Initiative – Developing Common Views on Agricultural and Rural Extension
www.neuchatelinitiative.net/english/index.htm

4.3.2.2 Producer and trader organizations, business associations and companies – special types of service providers

In addition to the more traditional type of service providers (extension, research, consultancy, training institutions, etc., as described above), further types of service providers gain importance in the context of VCD: producer and trader organizations, such as farmer groups and business associations (see Section 4.3.1.3); and (usually larger) companies offering so-called embedded services[15].

Producer and trader organizations and business associations play a crucial role within the VC System for Competitiveness, namely as service providers within the different nodes of the VC (horizontal cooperation), as linkage platforms in collaboration with business organizations at other stages of the VC (vertical cooperation), and last, but not least, as interfaces between the private and public sectors (advocacy and lobbying). Strengthening these types of self-help organizations will contribute to building sustainable service structures for NUS-VCD.

Types of services provided

Strong private sector organizations are able to provide facilitation for VC operators to improve their performance and competitiveness, gain access to services, gain access to markets, and to lobby for improved framework conditions. In particular with regard to the development of NUS-VCs, producer and trader organizations and business associations can fulfil the following tasks (see also Section 4.3.1.3):

- facilitation of joint learning and exchange of experiences through the establishment of information services and establishment of dialogue platforms at national and local levels;
- facilitation of training and advice, e.g. in marketing, management, production, processing and quality assurance;
- facilitation of access to external services such as seed suppliers or gene banks, and laboratory, certification and financial services;
- facilitation of access to innovations, technology and knowledge transfer through joint research activities or dissemination of third-party research results to members;
- facilitation of joint input provision and joint utilization of infrastructure (e.g. storage facilities) and technologies (e.g. land preparation), opening up opportunities for cost reduction;
- facilitation of market access through linkage development and increased volumes (economies of scale), improved quality and perhaps broader product ranges;
- facilitation of marketing, with different scopes of joint business decisions, from combined promotional actions, to joint collection of produce, up to collective commercialization; and
- facilitation of the representation of members' interests with regard to improving legal, infrastructural and administrative framework conditions (e.g. legislation on collecting from the wild, licensing procedures, multiple taxation, legal standards and enforcement, telecommunication, and market infrastructure).

The double function of farmer groups as BDS-providers and BDS-clients

In a dual position, farmer groups can act either:

- **as BDS-clients:** group members can bundle their demand (collective action) to become capable of paying for services (economies of scale) while self-organizing the dissemination of the services received through farmer-to-farmer extension; or

[15] Embedded services are integral part of the business relationship. The service (e.g. extension, training, input supplies, loan guarantee) is provided by a business partner (e.g. processing or export company) and forms part of the business transaction (e.g. service charges deducted from the final sales revenue).

- **as BDS-providers:** groups can organize services for their members, such as joint provision of inputs, joint access to information and technologies, to credits and savings and to technical services such as joint organization of plant protection, documentation, etc.

Embedded services provided by lead firms or other business partners

The third special category of BDS is embedded services, which belong to those types of services that exist in many places but–as the Committee of Donor Agencies for Small Enterprise Development states–are often not recognized. However, this is an omission, since embedded services play a crucial role in VCD. Embedded services form an integral part of business relationships: the service (e.g. extension, training, input supplies, loan guarantee) is provided by, usually larger, downstream business partners (e.g. a processing or export company) and forms part of the business transaction (service charges are usually deducted from the final sales revenue). Embedded services may also be provided by upstream business partners, such as input suppliers (e.g. advice on the appropriate use of pesticides, time for payment allowed). The explanations in Box 11 and the subsequent case study (Box 12) illustrate the role of lead firms in VCD and the mechanisms of embedded services.

Box 11. Role of small and medium enterprises as lead firms in VCD

Business linkages facilitating small-scale farmers' access to markets

Essential impetus for VCD comes from increased competitiveness of the business sector, especially from small and medium enterprises (SME). As suppliers of inputs or customers buying raw, semi-finished or finished products (intermediaries, wholesalers, retailers, processors or exporters), SMEs are natural business partners for small-scale farmers.

SMEs can play an essential role in VCD, provided that:

- the legal and administrative environment favours reliable business linkages;
- the SMEs have access to efficient, business-oriented services; and
- the VC operators are capable of and willing to share risks and gains, and to establish trustful, reliable business relationships.

The tasks of SMEs in VCD lie primarily in two areas:

- to increase competitiveness in local, regional and international markets through suitable production processes, quality management, product innovation and orientation to target markets, etc; and
- to cooperate with farms and other firms and related service institutions (horizontal and vertical networking) in order to strengthen VC competitiveness.

Provided they are reliable partners, SMEs can take the lead in VCD by:

- pulling VCD toward the upstream end of the VC;
- pushing VCD toward the downstream end of the VC; and/or
- providing services to their upstream or downstream partners in the VC.

Source: Will (2006a)

Box 12. Developing embedded services: Case study of the African Garden Egg (*Solanum aethiopicum*) in Ghana

Exporters and smallholders join forces to access external markets

Starting point:
Being a highly perishable product, quality assurance along the entire VC is essential, especially for African Garden Egg destined for export.

Quality assurance strategies:
Ghanaian exporters have adopted different strategies to ensure quality from the field to the point of shipment (the first option represents the lowest level, the third one the highest degree of cooperation between the VC partners):

- inspection of produce before purchasing at farm gate or at the market; or
- procurement at small-scale farms, with the exporter organizing harvesting and post-harvest handling with own staff; or
- conclusion of a contract with well-selected outgrowers (selection criteria include reliability and trust).

Embedded services within the outgrower scheme:

- the exporter provides inputs such as seeds, fertilizers, pesticides and money for hired labour, while
- the outgrower pays for the services on supply of the produce (service charges are deducted from the proceeds).

Source: Horna *et al.* (2007)

Embedded services could even become more important for NUS-VCD if trustful and long-term relationships could be established between small-scale producers or collectors and their business partners in the VC, for the mutual benefit of all parties involved.

FURTHER READING

See also Chapter 3 and Section 4.3.2.1

Elliott, D. 2006. Understanding embedded business services. *Rural Development News* 1/2006. Available online at: www.springfieldcentre.com/publications/sp0606.pdf

Gibson, A. 2005. Bringing Knowledge to Vegetable Farmers: Improving embedded information in the distribution system. The Springfield Centre, and Katalyst Bangladesh. Available online at: www.springfieldcentre.com/publications/sp0502.pdf

4.3.2.3 Financial services
– facilitating investments for upgrading NUS-VCs

Developing NUS-VCs requires investments. Not only for tangible assets–such as seed production and supplies; land preparation; farmland expansion; crop pre-financing; transport, processing and storage; equipment; and infrastructure in its broader sense–but also for seemingly intangible assets, such as research, technology transfer, marketing and continuous innovation. Apart from credits and savings, financial services also include monetary transactions, insurance, and special categories such as inventory credits (e.g. warehouse receipt systems).[16]

[16] "Warehouse receipts refer to documents guaranteeing the existence and availability of a given quantity and quality of a commodity in storage; commonly used as the instrument of transfer of ownership in both cash and futures transactions" (www.forexrealm.com/forex-for-beginners/forex-glossary-w.html). Provided respective agreements between the warehouse and the bank have been concluded, suppliers can present the warehouse receipt to the bank as collateral for credits after having deposited goods at the warehouse.

Challenges

In many developing countries, individuals do not own land rights or land titles are not clearly recorded. Furthermore, most types of agricultural and agro-industrial activities are a seasonal business and cash income depends very much on unpredictable weather conditions that influence yields from one season to the other and make incomes irregular. Carrying incalculable and high risks, bankers and other lenders avoid venturing into agriculture and related business activities.

As a consequence, the availability of credits and savings (the latter as reserve for future investments) is usually inefficient, if not absent, especially in rural areas, hence forming an entry barrier to market access. Among the principal supply-side reasons for these constraints, the following are to be highlighted:

- financial service packages are not adapted to the needs of VC operators, especially the resource-poor (loan procedures, duration, interest rates); and
- collateral is not accepted (e.g. due to land tenure provisions and ignorance of the value of agricultural produce by the bank management).

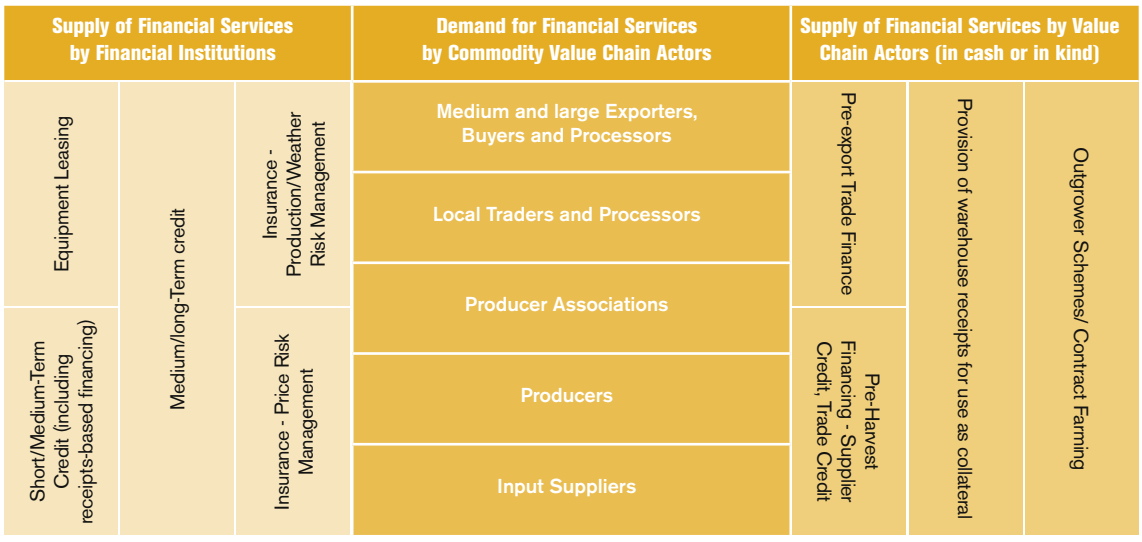
However, even if financial services are available, VC operators may not use them. Because of the risks associated with investments and the lack of capacities to weigh potential benefits against costs and risks (return on investments), smallholders often do not seize opportunities, even if investments may promise to be profitable. Furthermore, the emergence of a market for financial services may also be hindered by projects and NGOs providing loans and facilitating savings, instead of building sustainable structures for financial services.

Providers of financial services

As illustrated in Figure 8, financial services for NUS-VCD may be provided by:

– financial institutions such as private banks and micro-finance institutions, credit and savings cooperatives or public entities such as agricultural banks or community financiers; or
– VC operators such as wholesalers, processors, storage providers, traders or input suppliers in the form of embedded services.

Figure 8. Value chain finance demand and supply



Source: USAID (2005)

Possible measures to support services for financing VC upgrading

If well designed, interventions to developing structures for financial services can contribute to increasing the performance and competitiveness of the entire VC by:

- strengthening the position of the resource-poor as business partners in the VC;
- fostering investments in value addition (e.g. product development, use of by-products); and
- opening new markets (e.g. development of distribution channels, promotional campaigns).

The development of appropriate credit and savings services oriented to NUS-VCD necessitates approaches to improve both the offer and demand sides of the financial service market. The eight case studies, on which these guidelines are based, give little information about the need for and development of financial services. Where they do, investment needs are simply analysed at the production level, and not at the downstream end of the VC, despite the fact that these are as important for VCD, and hence for market access for producers or collectors. Possible measures for developing the use of the financial services market include:

- **demand for financial services:** assist VC operators to assess potential concrete benefits and real costs with regard to reducing the risk-adversity of VC operators; assist development of bankable business plans; provide information on financial service providers and service conditions; facilitate embedded financial services; support skills development to prepare business plans and to utilize the financial services in an efficient way; etc; and
- **offer of financial services:** assist the identification and assessment of financial service needs of NUS-VC operators; support the development of appropriate financial service packages (e.g. pre-financing of harvests; co-financing of embedded services; long-term financing of village-level processing; guarantee funds); support the development of capacities (e.g. assessment of business plans, management of risks related to farm collateral); and support the development of concepts for the reduction of costs for credit supervision and loan recovery.

A sequenced approach to developing financial services consists of various steps:

- assess credit and savings needs and promising business financing projects;
- map existing financial service providers and assess their strengths and weaknesses;
- support the development of suitable financial service packages (credits, savings, etc.);
- support the development of bankable business plans by VC operators;
- build capacities of financial services' staff to evaluate business plans and assess risks; and
- assist VC operators to use the credits successfully.

In the absence of a formal market for appropriate financial services, NGOs, the public sector and assistance organizations frequently subsidize VCD. To get VCD started, such approaches are acceptable, as long as the programmes also provide for support to developing sustainable structures for the provision of financial services beyond external intervention.

Box 13. Developing factoring facilities as a financial service: Case study of African leafy vegetables in Kenya

Filling the gap between suppliers' short-term finance needs and customers' payment periods

Starting point
For the development of the African leafy vegetable VC a tri-partite agreement has been concluded between the farmers and farmer groups as suppliers, the supermarket as customer, and the NGO as VC supporter. The NGO acts as an intermediary between the farmers and the customer, assuring quality, timely delivery and financial intermediation.

Financial service
Since the farmers are not capable (or not willing) to accept the 60-day bridgeover finance period required by the supermarket, the NGO pays the farmer groups on presentation of delivery notes from supermarkets. The NGO recovers the funds when the supermarkets settle their accounts after 60 days.

Exit strategy
Recognizing that this arrangement is not sustainable, the NGO is currently developing an exit strategy.

Source: Irungu (2007)

FURTHER READING

See also Chapter 3

USAID. 2005. Value Chain Finance. RAFI Notes, Issue No. 2. Available online at:
www.ruralfinance.org/servlet/BinaryDownloaderServlet?filename=1127740844537_RAFI_note_2.pdf

RELEVANT WEB SITES

See also Chapter 3

CGAP – Building Financial Systems for the Poor
www.cgap.org/portal/site/cgap/

FAO – Rural Finance
www.fao.org/ag/ags/subjects/en/ruralfinance/index.html

Microfinance Gateway
www.microfinancegateway.org/

SEEP Network – Financial Services
www.seepnetwork.org/section/programs_workinggroups/action_research/working_groups/bds/bds_guide/_access/bds_financial_services/

USAID – Rural Finance Learning Centre
www.ruralfinance.org/servlet/

4.3.2.4 Demand creation through promotion and consumer education – possible institutional set-up

"Promotion from either supply or demand ends, without the balancing effect of the other, could be an inhibiting factor to further market development." (Irungu 2007)

Campaigning for on-farm biodiversity conservation through the promotion of production hence calls for parallel efforts to create demand both through product promotion and through consumer education (see also Section 4.3.1.7). Necessary investments into promotion and consumer education should not be underestimated.

Possible measures to support demand creation for NUS in general or specific NUS in particular

- **analyse the market** to assess the offer of similar or substitute products and competitors, and existing or potential demand (e.g. consumer segmentation along ethnic lines related to specific NUS);
- **identify strategic partners** to facilitate joint action for broad-based promotional campaigns combining business interests (VC operators) with public interests (e.g. health services, local or regional economic development);
- **create an action plan** with clearly defined budgets and responsibilities for implementation to ensure a well targeted and coordinated campaign;
- **educate consumers** in health aspects of the use (nutritive value) and on the cultural and environmental aspects of the conservation of NUS in general as well as of specific NUS;
- **promote products** through media, such as periodicals, documentary films, radio and TV; other mass communication; through participation in trade fairs; and the organization of consumer testing in supermarkets and groceries, offering recipes and samples for tasting;
- **encourage the business sector** to commit resources to the promotion of NUS, either as individual companies or as a joint activity of business associations; and
- **encourage consumer organizations** to take a lead in consumer education and consumer protection as a facilitator between consumers and the business sector.

Box 14. Demand creation through promotion and consumer education: Case study of African leafy vegetables in Kenya

Reviving the demand for traditional food

Starting point
As part of an initiative to promote dietary diversity, international and national public and other institutions started to promote NUS in Kenya through the promotion of knowledge development and consumption of African leafy vegetables (ALVs). The partners are Bioversity International and the CGIAR group, the Ministries of Health and Agriculture, research institutions and universities, National Museums, the National Gene bank of Kenya, Kenyatta National Hospital and NGOs such as Farm Concern International, Rural Outreach Program and Nairobi Friends Club International. In 2002, Bioversity International expanded its mandate from conservation to research into food security and improved nutrition, income generation, ecosystem stability and cultural diversity.

Support measures

- 1st phase (1995-2001):
  inventory of ALVs and identification of the factors hindering their cultivation, conservation and marketing.
- 2nd phase (2001-2004):
  research (collection, analysis of nutritive values, evaluation of agronomic and nutritional aspects), distribution of seeds to farmers, compilation and dissemination of recipes, public awareness campaigns, and marketing of ALVs within Nairobi and its environs.
- 3rd phase (2004-2005):
  organization of two African Food Fairs, including displays of African dishes, preparation demonstrations and a cooking competition covered by a media campaign (TV and radio), research on the promotion of ALV consumption, on utilization practices and sustainable production of selected ALVs, distribution of quality seed to target farmers, intensification of the promotion of seed supply, production and marketing (in Nairobi and Arusha), and training of farmers and staff of supermarkets.

Impact

- increased awareness of ALV properties and improved reputation of ALVs, contributing to balanced diets; and
- increased demand for ALVs.

Source: Irungu (2007)

FURTHER READING

den Hartog, A.P., van Staveren, W.N. & Brouwer, I.D. (editors). 2006. Food habits and consumption in developing countries – Manual for field studies. Wageningen Academic Publishers, The Netherlands. See: www.wageningenacademic.com/Default.asp?pageid=8&docid=16&artdetail=Foodhabits&webgroupfilter=2&

4.3.3 Building structures and developing capacities at the level of VC enablers (macro level)

Economic growth, social inclusion and environmental sustainability need a conducive environment, in which business activities lead to income generation and employment creation, and hence to value-added for the resource-poor. Yet, in many developing countries, the political, legal, administrative and infrastructural frameworks represent major barriers to business development, since they affect market access, input and transaction costs, as well as output prices.

4.3.3.1 The importance of the investment climate

This is even more true for the emergence of NUS-VCs, since it is in general more difficult to assess the risks associated with investments in innovative products such as NUS than for known commodities. Thus the investment climate is very important for promoting the development of NUS-VCs. The following factors constitute the investment climate:

- macro-economic policies and stability, including monetary policy;
- financial policies, including tax systems, customs duties, other levies and incentive schemes;
- economic policy, e.g. industrial and national and international trade policies;
- rural livelihood support policies;
- agricultural policy, e.g. promotion of NUS-VCs and value-addition;
- agricultural trade policy, in particular with regard to the World Trade Organization;
- environment and conservation policies;
- legislation, e.g. food law, business registration and licensing, land rights;
- law enforcement, e.g. of business contracts, food safety control;
- economic infrastructure, e.g. road and telecommunication networks, rural markets;
- social infrastructure, e.g. education, health services and social insurance;
- public utilities, e.g. water, electricity, sewage and waste disposal, public transport;
- administrative efficiency;
- service provision (research, extension, community services such as market management);
- food standards and norms; and
- quality of infrastructure (standards, metrology, testing, certification, accreditation) with special regard to national and international certification schemes.

Gearing these framework conditions to fostering NUS-VCD is a challenge, given the complexity of the investment climate and the prevailing problems in many developing countries:

- even where the intention is laudable, policies might fail to promote the development of markets for NUS due to insufficient and inappropriate evaluation of the needs for interventions and lack of knowledge of appropriate policy, legal or other instruments;

- often, the legislation on land rights, business registration, licensing of collection rights, food standards, etc., hampers investments into and the development of viable NUS-VCs, and even where laws and regulations are in place, enforcement is very often a major problem;
- in many countries, the economic infrastructure and public utilities are inadequate, to say the least, resulting in high transaction costs, low yields, high wastage rates, low utilization of processing facilities and the like;
- even where public services are in place, the efficiency of research, extension or community services (e.g. market management) is often compromised by lack of capacity, innovative approaches, demand-orientation of services and financial resources for effective outreach;
- etc.

As an example of the first point, Hermann and Bernet (unpublished) summarize that the
"Peruvian government policies have had a mixed record in terms of support to maca supply chains. Ill-informed and politics-driven activities promoted maca production without complementary market development interventions. The decrees limiting exports of crudely processed maca probably did more damage than generate benefits to farmers and other supply chain actors."

At the same time
"the recent support … to the establishment of maca product norms, in consultation with a wide range of maca stakeholders, is an encouraging development for the regulatory role of this public agency. These product norms are expected to contribute to consumer safety and the proper functioning of maca marketing, making the sector more competitive." *(ibid.)*

4.3.3.2 National and international dimensions of the legal framework for NUS

Globalization is changing the context in which governments, institutions and the business world in developing countries have to operate. NUS not only have to compete with other commodities in their home markets, but increasingly also with imports of staple crops and niche products to their domestic markets, not to speak of the ever-increasing competition for export shares in the world market. However, globalization may also open opportunities, as described in Section 1.3 Promoting value chains of NUS – drivers fostering or hampering utilization of biodiversity.

For example, global trends in consumption patterns increasingly influence preferences of urban consumers with regard to healthy food, and to additional attributes, such as cultural values and the promotion of biodiversity conservation. Furthermore, the food industry becomes ever more interested in product diversification, and in exotic food additives, such as flavours derived from NUS. Hoping to benefit from these developments, countries of origin need to adjust to and comply with international agreements and market access requirements in the respective target markets. There is hence a need for harmonizing national legal frameworks with international provisions.

In today's globalized markets, the legal framework has two dimensions:

- **a national dimension:** in many developing countries, often diverging policies of different line ministries have to be coordinated, the confusing number of laws, regulations and directives have to be reduced and harmonized, and mandates of diverse institutions have to be streamlined to facilitate transparency and hence enable VC operators to work in a more reliable environment (see Box 15); and
- **an international dimension:** in many developing countries, governments and state institutions have to be strengthened to harmonize national approaches with international agreements, to learn from international good practices, and, especially, to represent the interests of their national economies and private sector; and to negotiate better conditions in international trade liberalization (see Box 16).

Box 15. National policies and regulations for VCD: Case study on legal provisions governing the collection of laurel in Syria

Effects of laws, regulations and enforcement structures on VCD

Legal framework
In 1994, the Ministry of Agriculture and Agrarian Reform passed a legal framework setting regulations and rules on civil responsibilities for the protection of, investments into and commercial use of all forest species on state land, private property and in protected areas. The regulations also provide for penalties in case of abuse. Utilization of forest products became subject to licensing.

Shortcomings in the provisions and enforcement
- Information on the regulations and rules for their implementation, as well as on frequent changes in those rules, is not available to most communities, leading even to involuntary breach of regulations when any collection was suspended for several years up to 2006.
- The right of forest community members to collect forest products is limited to the needs for household consumption, calculated on the resource base in the forest (e.g. 10 kg of laurel per collector in specific areas of the country). These restrictions, however, hamper the utilization of the existing commercial potential.
- Licences are issued on presentation of applications by interested parties giving details of their investment capacities and of the areas foreseen for exploitation. Not having the means to apply for licences, the resource-poor of the forest community are excluded from holding licences, leaving exploitation to more wealthy traders.

Recommendations
- Through the establishment of public-private dialogue, it should be ensured that community interests be considered in the review of policy frameworks to promote forest products, regulations and rules.
- Private actors, both communities and soap processors, assume that leasing of laurel forest areas to communities would provide an incentive for more sustainable exploitation of natural resources.
- Availability of and access by communities to timely and accurate information should be put in place and capacities of communities built to access and use information and to ask authorities for clarification if necessary.
- Quality standards for the oil gathered from laurel, in line with legal provisions for the labelling of products, need to be developed to facilitate international trade and to introduce a scheme of price differentials.

Source: Giuliani (2007)

4.3.3.3 Particularities of legal framework conditions for NUS

Currently, two international projects play an outstanding role in the promotion of NUS: the United Nations (UN) Convention on Biological Diversity (CBD) and the revision of the Novel Food Regulation (NFR) of the European Union (EU):

- UN-CBD:

"The objective of the Convention on Biological Diversity (CBD) is to conserve biological diversity worldwide, promote its sustainable use and ensure the equitable sharing of the benefits arising from the use of genetic resources. This applies particularly to the development of medicines or agricultural products for the world market. The task of the state parties to the convention is to develop a fair and transparent regime governing access rights and equitable benefit-sharing, in order that the utilisation and marketing of genetic resources or of the traditional knowledge of local communities can generate further sources of income. The CBD explicitly promotes in this context the support and recognition of the contributions made by indigenous peoples and traditional communities, who often live in areas that are hotspots of biological diversity. In that endeavour, the establishment and co-management of protected areas, e.g. in the tourism sector, can be important tools combining the conservation of biological diversity with the improvement of the living conditions of local people." (GTZ 2006a)

- EU-NFR:
  "The NFR [Novel Food Regulation] regulates the placing of 'novel foods' in EU member states to protect public health by ensuring food safety. It calls for anyone wishing to place a food product on the EU market to first evaluate whether the food is 'novel' and then to present evidence that it is safe. Novel foods are foods and food ingredients that have not been used for human consumption to a significant degree within the Community before 15 May 1997. What constitutes 'a significant degree' is not specified and is subject to interpretation. … The categories established in the regulation do not expressly recognize or accommodate traditional foods from outside the EU … yet 'food and food ingredients consisting of or isolated from plants and food ingredients isolated from animals' may be novel foods, except for those 'obtained by traditional propagating or breeding practices, and having a history of safe use'. Thus, the regulation appears to exclude traditional foodstuffs, but the wording is unclear (how does one prove a history of safe use?) and contradicts current interpretations and practice under the NFR." (Probst and Hoeschle-Zeledon, no date)
  In a bid to obtain better access for biodiversity products to the EU-market, "representatives from 14 developing countries expressed strong concern" at the meeting of the World Trade Organization (WTO) on Sanitary and Phytosanitary Measures (SPS) on 29–30 March 2006, stating that:
  "…the current provisions and proposed revision of the Novel Food Regulation seriously affect their ability to export 'small exotic traditional products based on their rich biodiversity' to the European Union market. Since the EU considers any food newly introduced to the European market since 1997 as novel, developing countries' exporters have to invest important amounts of money to gain market access for such products to the EU. The United Nations Conference on Trade and Development (UNCTAD) initiative BioTrade and other development partners (e.g. GFU, CBI, IPGRI and GTZ) support the developing countries' request for better market access." (Will and Guenther 2007)

Further legal provisions important for NUS include:

- **Intellectual Property Rights (IPR):** Closely linked to the NFR, national and international patent rights are another field for legislators to create enabling legal framework conditions protecting Intellectual Property Rights (IPR) of local communities. There are several cases where international companies were granted patents in export markets, claiming novelty, for example, for extraction methods, specific functional ingredients, health benefits and suchlike, without verifying possible indigenous knowledge or seeking an agreement on fair profit sharing with local communities.
  While the protection of traditional knowledge is undisputed, Hermann and Bernet (unpublished) also look at the case from the side of the international patent holder investing in product research for obvious profit motives, but also with clear economic benefits for the upstream partners in the VC:
  "Clearly, [the international patent holder] had not shown sensitivity for the economic needs of indigenous maca farmers, with whom it might have sought an agreement on a profit-sharing mechanism, nor did the company have the vision that a fair profit-sharing agreement would have been a powerful marketing instrument, paying handsome dividends. But, at no point was public sentiment [in Peru] appreciative of the company's need to protect what it claimed to be a (disputed) novel extraction method, for which the Peruvian companies claiming to be using it already might have pursued patent protection as well. … Companies investing in the scientific substantiation of indigenous knowledge thus tread difficult territory where the need for proprietary substantiation lies next to biopiracy accusations. As a matter of fact, private investors can make an important contribution (for admittedly selfish reasons) to the recognition and economic valuation of indigenous knowledge by providing scientific substantiation, but are forced to protect themselves through patents or other IPR mechanisms against free-riders not willing, or unable, to make such investments."

- **Collection rights and licensing:** Legal rights, enforcement and licensing systems for the collection of NUS from forests are critical for ensuring access of the rural poor to genetic resources as income generating opportunities. However, legal provisions often ignore local communities. This is, for example, the case where collection rights are auctioned, a system usually requiring that interested contractors have sufficient financial resources to participate in the auction process.
  In the case of *Garcinia* species in South India, for example, collection rights and licensing procedures hinder the rural poor from participating on an equal basis with middlemen in the market:
  "...owing to their high dependence on the forest resources for their livelihoods, the community members are forced to collect illegally and sell the products through middlemen that have been able to obtain the licence. Due to these legal obstacles, collectors clearly face severe limitations in their bargaining power." (Kruijssen and Mysore, unpublished)

Box 16. International policies and regulations restricting access to export markets: Case study on the transition of maca from neglect to market prominence in Peru

Effects of international regulations on VC competitiveness

Starting point – Challenging international market access requirements
Following the seizure of produce in the EU and Japan in the early 2000s, exports of maca started to face serious problems. Partly, these problems were due to the intensification of production and irresponsible use of pesticides, resulting in confiscations, mainly in Japan. The situation became more serious when EU member state authorities (Germany, Netherlands) started to withhold maca supplies referring to "the potential status of maca as a novel food" under the Novel Food Regulation (NFR). Maca even appeared in the weekly EU Rapid Alert System for Food and Feed as a 'non-authorized novel food'.

Measures undertaken
- In 2003, an exporter whose consignment was seized by Dutch authorities was able to present a dossier of the Peruvian tax authority revealing that maca had already been exported to the EU (Italy and Spain) in 1996, so that the cut-off date (15 May 1997) was not applicable.
- In April 2006, the Government of Peru submitted a communication to the World Trade Organization expressing strong concern that the current provisions and the envisaged revision of the NFR seriously affected the ability to export traditional products gathered from the rich biodiversity of their country.†

Recommendations
- Develop simplified methods for the assessment of the food safety of traditional exotic products on a risk-based approach, meaning that clinical studies (e.g. on toxicity, allergenicity) be only required in case of reasonable doubts.
- Facilitate access to information on export market access requirements (e.g. food safety) and capacity building to comply with standards and achieve certification (e.g. organic and fair-trade).

† WTO – Committee on Sanitary and Phytosanitary Measures: Regulation 258/97 of the European Parliament and of the Council concerning Novel Foods: Communication from Peru. www.biotrade.org/BTFP/BTFP-docs/EU_NF_Communication_gen681_en.PDF

Sources: Hermann and Bernet, unpublished; Probst and Hoeschle-Zeledon, no date.

4.3.3.4 Need for public-private partnership

The responsibility for the design and realization of framework conditions stays with the public sector (national government and state institutions, provincial and communal political and administrative structures). Nevertheless, the private sector, mainly through its representative institutions (associations, federations), plays an important role in jointly identifying solutions and implementing measures through private-public dialogue. As an example, the translation of CBD into national policies, legislation and business operations

(the latter especially as regards Access and Benefit Sharing) needs close communication and cooperation between the public and the private sectors.

The need for such cooperative public-private approaches can also be exemplified by the establishment of industry self-control quality assurance systems, as briefly described in Section 4.3.1.5. Even if designed and implemented by the VC operators, industry self-control quality assurance systems have to be embedded into a legal framework (agricultural and manufacturing practices, provisions for trade, as well as for food safety, the protection of the environment and consumer health, etc.) with a state-run quality infrastructure (Metrology, Standardization, Testing and Quality Assurance – MSTQ) that includes food control and inspection systems. The better private and public approaches are harmonized, the more conducive will be the framework, within which VC competitiveness can be developed while ensuring environmental protection and public health.

4.3.3.5 Possible measures to support structure and capacity development for conducive framework conditions for NUS-VCD

In many developing countries, the organizational and technical capacities of the public sector need to be upgraded to enable them to create framework conditions that will foster NUS-VCD, with a view to promoting pro-poor growth, achieving food security and facilitating biodiversity conservation. Planning of interventions should be based on a sound analysis of current provisions and gaps, as provided for in the VC analysis. Lessons learnt from VCD projects in general, and from the case studies on which the present guidelines are based, suggest that the following measures can contribute to improving framework conditions:

- support public-private dialogue and cooperation:
  - to develop rules and procedures for the conservation and protection of traditional knowledge and the rights of indigenous people and communities to exploit natural resources;
  - to facilitate the participation of indigenous peoples and communities in policy and strategy development for NUS-VCD (e.g. mainstreaming international resolutions into national policies); and
  - to advocate and apply for access to the EU market through joint investments in necessary assessment of the regulations under the Novel Food Regulation; and
- foster and implement a coherent policy for the promotion of NUS-VCD:
  - by coordinating policies with other line ministries (agriculture, environment, industry, trade, finances, health);
  - by creating supportive agricultural and marketing policies, including provisions for related infrastructure (roads, markets, public transport, utilities, etc.);
  - by harmonizing national legislation and regulations with internationally recognized provisions to facilitate access to international markets (e.g. standards and norms);
  - by mainstreaming international agreements (e.g. CBD, IPR) into national policies, legislation and development strategies;
  - by establishing an internationally recognized quality infrastructure (Metrology, Standardization, Testing and Quality Assurance) to facilitate access to international markets;
  - by providing conditions that support communities to preserve and use traditional knowledge (mainly IPR, tax and other financial incentives);
  - by promoting and supporting the certification of local produce to comply with internationally recognized private trade and industry standards;
  - by facilitating the functioning of markets through supportive regulatory provisions and appropriate infrastructure to reduce transaction costs;

- by creating incentive schemes for NUS-VCD (e.g. funds for R&D on products and markets, trade promotion, consumer awareness campaigns); and
- by developing methods for the assessment of the food safety of traditional exotic products on a risk-based approach (see Box 16).

In conclusion, the following quote sheds light on the role of governments and public institutions in NUS-VCD, and also on the challenges:

"The state and public sector have important roles to support NUS supply chains with regulatory frameworks and research unaffected by particular private sector interests. [Yet, the] ... design of policies in Peru in support of maca supply chains have in general been poorly informed. However, the recent public sector initiatives to support maca product norms, and to challenge maca patents granted in the US, are an encouraging sign of future developments. Much more needs to be done, in particular crop and product dossiers, an enabling environment for geographic indications protection, peer-reviewed research on NUS, etc." (Hermann and Bernet, unpublished)

FURTHER READING

See also Chapter 3.

GTZ. 2006a. Poverty Reduction: Biodiversity and Poverty; GTZ Sector Project "People and Biodiversity in Rural Areas" (Unit 45); Issue Papers Biodiv. Available online at: www.gtz.de/de/dokumente/en-biodiv-issue-poverty-reduction-2006.pdf

GTZ. 2006b. Policy Instruments for Resource Efficiency: Towards Sustainable Consumption and Production. GTZ, Eschborn, Germany. Available online at: www.scp-centre.org/uploads/media/GTZ-CSCP-PolicyInstrumentsResourceEfficiency_01.pdf

Herzberg, B. Wright, A. 2006. The Public-Private Dialogue Handbook: A Toolkit for Business Environment Reformers. DFID/World Bank/IFC/OECD. Available online at: www.publicprivatedialogue.org/tools/PPDhandbook.pdf

Probst, K. & Hoeschle-Zeledon, I. No date. The EU Novel Foods Regulation – its impact on trade in biodiversity products from developing countries. GTZ Sector Project "People and Biodiversity in Rural Areas" (Unit 45); Issue Papers People and Biodiv. Available online at: www.gtz.de/de/dokumente/en-agrobiodiv-eu-novel-food-2005.pdf

Will, M. & Guenther, D. 2007. Food Quality and Safety Standards as required by EU Law and the Private Industry – With special reference to the MEDA countries' exports of fresh and processed fruit & vegetables, herbs & spices – A Practitioners' Reference Book. 2nd revised and updated edition. GTZ, Eschborn. CD-ROM. Available online at: www2.gtz.de/dokumente/bib/07-0800.pdf

RELEVANT WEB SITES

See also Chapter 3.

DFID/World Bank/IFC/OECD Development Centre – PublicPrivateDialogue
www.publicprivatedialogue.org/

FAO – Legislation and Marketing
www.fao.org/ag/ags/subjects/en/agmarket/legislation.html

FAO – Market Infrastructure and its Management
www.fao.org/ag/ags/subjects/en/agmarket/infrastructure.html

FAO – Marketing Policy
www.fao.org/ag/ags/subjects/en/agmarket/marketpol.html

Donor Committee on Enterprise Development
www.businessenvironment.org

4.3.4 Facilitating change at the level of VC attitudes (meta-level)

"Only 7% of companies today are effectively managing their supply chain. However, these companies are 73% more profitable than other manufacturers. … The results of [the] … study, which includes responses from nearly 600 companies around the world in 22 countries, clearly indicate that effectively managing a complex global supply chain has a positive impact on a company's financial performance. [It was] found that it is not simply the supply chain initiatives that manufacturers deploy that make the difference, but that the key to generating financial performance is synchronising the supply chain and managing it from a holistic, rather than fragmented, view." (Deloitte 2003)

Experience shows, and the case studies confirm, that this applies not only to global supply chains but also to the performance of local, regional and national NUS-VCs in developing countries and their (possible) integration into global VCs.

Exchanges and concerted action within the VCs are at stake. In other words, the attitudes and performance of VC operators, VC supporters and the conduciveness of framework conditions are decisive for creating private benefits (e.g. food security, income generation and employment creation for better livelihoods) and public values (e.g. public health, environmental protection, biodiversity conservation and pro-poor growth).

In reality, though, most VCs are highly inefficient due to fragmented horizontal and vertical structures. The relationships between the operators in VCs are characterized by distrust and ignorance of the performance and capacities of the upstream and downstream partners: producers do not have good relationships with intermediaries, who do not have good relations with traders, who do not have good relations with exporters, who do not know the needs of their customers and the final consumers. As a result, actors mistrust each other. And where there is distrust, people are unwilling to understand each other's roles and problems within the VC and to appreciate their performance as a basis for reliable and sustainable business relations.

"In today's highly competitive environment, as companies are under intense pressure to reduce costs, expand into new markets and develop new products, every manufacturer's supply chain is expanding and becoming increasingly complex. However, complexity is not the enemy to the supply chain – effectively managing complexity can be a manufacturer's greatest asset …". (Deloitte 2003)

The challenge, therefore, is to efficiently and effectively manage cooperation to strengthen the competitiveness of the entire VC. To achieve this, past experiences of deceptive business relations have to be overcome, and risk perceptions changed, so that operators along the entire VC can change their attitudes and behaviour with a view to becoming more conducive for reliable business relations and successful market access.

Consequently, VCD is closely linked to building social capital, defined as social norms (such as influencing trust) and social structures (predominantly networks). With a view to strengthen the social capital as a precondition for the development of sustainable VC structures, moderators of the VCD-process have to contribute to improving VC-governance (see Section 4.2.1.2) by facilitating:

- **transparent cooperation,** characterized by efficient and effective two-way information flows;
- **reliable business relations,** characterized by consistent and timely supply and payment flows; and
- **trustful collaboration,** characterized by fair prices and balanced distribution of gains.

This can best be achieved through participatory and process-oriented approaches

- involving relevant stakeholders, and VC operators in particular, right from the beginning of the VCD-process;
- providing opportunities for exchange of experiences to understand each other's position within the VC and for negotiation of business relations; and
- supporting stakeholders at micro-, meso- and macro-levels to upgrade their performance to better fill their respective roles with a view to strengthening the competiveness of the VC.

Private and public values
impacts of the development of NUS-VCs

The meaning of private and public values of NUS-VCD may be summarized as follows:

> **"Agricultural biodiversity (including genetic diversity) is valuable to farmers for both commercial and non-commercial use. It sustains agricultural systems, ensures productivity, minimizes risks, attenuates shocks, provides insurance against volatile and imperfect markets, increases resistance and resiliency of ecosystems, and provides social and cultural values. Genetic diversity also has value to humanity; it provides species with the ability to adapt to changing stresses such as pests and diseases or climate change. In addition, the use of diversity of plant genetic resources generates public benefits to today's generation and future generations by conserving genetic traits for future generations and supporting healthier ecosystems. The ability of the poor to access and use genetic resources has implications for farmers' productivity, livelihoods and farm ecosystem health, in both the short- and long-term timeframes."**
>
> **(Eyzaguirre and Dennis 2003)**

In a bid to giving evidence that the promotion of NUS-VCD generates private and public values, impacts have to be monitored and assessed during the course of the implementation of VC upgrading strategies. An impact is a hypothesis of intended changes (ex ante, i.e. description of effects aspired by VCD prior to intervention) and the measurement of effects achieved (ex post), including the possible occurrence of unexpected, unintended positive, negative or neutral changes. Impact orientation evolves from the understanding that changes have to be achieved in order to reach the objective of self-sustaining development. Aspiring to attain changes in livelihoods, mindsets and attitudes of target groups, of people within supporting organizations, and within political, legal and administrative entities have to adapt to new ways of cooperation among and with each other and to develop their capacities to be able to adopt innovative approaches.

5.1 Social, environmental and economic impacts desired – analogies and possible antagonisms

> **"The best way to preserve naturally occurring plant and animal species and those subspecies, types and races arising out of environmental conditions and human intervention, used, or potentially usable by humans, is to create and maintain a market value for them."** (Nill and Boehnert 2006)

Although it is hoped for and expected that commercial approaches such as VCD contribute to biodiversity conservation, food security and pro-poor growth, impacts do not yet provide evidence in how far–and if at all–these aspirations are realistic. Fujisaka *et al.* (unpublished) conclude from the assessment of nine case studies that

> **"The … analysis may appear pessimistic to some in terms of the generation of benefits to the poor. We believe that benefits can and should accrue to the poor; but that the difficulties involved should not be ignored. Furthermore, benefits need to be considered beyond the farm level: in some of the successful cases a range of ancillary services and industries sprung up around the crop providing rural income without necessarily greatly increasing farm income."**

The eight case studies evaluated in the preparation of the present guidelines confirm the findings of Fujisaka *et al.* to some extent. However, the so far limited positive impacts may in some cases be due to the short observation period (for capacity development and change management to produce measurable effects needs time), and in other cases due to weaknesses in approaches and intervention strategies. In the case of maca in Peru, for example, well intentioned but ill-adapted legal provisions repeatedly distorted market development. These triggered serious, although unintended but nevertheless negative, impacts on operators along the entire VC in general, on small-scale farm households in particular, and also on ambitions to sustainably establish on-farm conservation of maca (Hermann and Bernet, unpublished). Of the eight case studies, this is the only one giving evidence that possible positive impacts were not achieved due to ill-advised interventions. The case of maca confirms that sound analysis is fundamental for taking appropriate strategic decisions in general, and policy decisions in this particular case.

In conclusion, so far it could neither be proven whether NUS-VCD has a significant positive or negative impact on biodiversity conservation, food security and poverty alleviation. Thus far, there is no 'single truth' between the initially cited conclusions of Nill and Boehnert or Fujisaka *et al.,* the latter anyhow pleading for broadening the perception of pro-poor growth beyond the narrow focus on impacts on poverty alleviation at small-scale farm level.

These findings and some further reflections on the diversity of objectives pursued by developing VCs for NUS lead to some considerations that need to guide the discussion on intended impacts and on the indispensable prioritization of impacts sought. These reflections co-determine the selection of NUS that merit to be promoted (Step 1 of the VCD cycle; see Chapter 3) and will guide the entire process, including the orientation of VC analysis (Step 2), the identification of constraints and opportunities (Step 3), the design of a VCD promotion strategy (Step 4), through to implementation and monitoring (Step 5).

Striving for literally balanced environmental, social and economic impacts (see also Figure 1) means to seek the impossible, since some antagonisms are innate to the set of impacts for promoting NUS-VCs. Major differences have to be considered prior to embarking on projects:

- **VCD versus biodiversity conservation,** since VCD is by definition predominantly (although not exclusively) driven by economic objectives, whereas biodiversity conservation by–often higher-ranking, i.e. public–sustainability and environmental interests;
- **VCD versus farm-household system,** since VCD focuses on promoting selected species only, and within a species even on specific traits, while disregarding the need of vulnerable farming and household systems to diversify for subsistence reasons and risk mitigation; and
- **public versus private values,** as public interest in agro-biodiversity conservation may present conflict with private sector ownership, since simple public interest often leads to top-down approaches that usually frustrate VC operators, who will refrain from ownership and from committing the resources that are decisive for achieving self-sustained NUS-VCD.

Even if these considerations seem to preclude that reasonably balanced environmental, social and economic impacts can be achieved, there are certainly possibilities to attain desired effects, provided due attention is paid to setting realistic and realizable objectives and designing appropriate strategies.

5.2 Impacts of the development of NUS-VCs
– evidence from eight case studies

In general, it is expected (hypothesis) that the utilization of NUS will contribute to achieving the following impacts (Christinck, no date):

- Greater food security:
  "Local crops and animal breeds can increase food security, particularly if they are adapted to specific marginal agricultural conditions. Diversification is a means of risk reduction."
- Healthy nutrition:
  "Many underutilized crops have important nutritional qualities … They are therefore a significant complement to the 'major' cereals and serve to prevent…" diet deficiencies.
- Indigenous knowledge and cultural identity:
  "Many smallholders possess … knowledge of cultivation and processing techniques … for NUS …" worth preserving, also for their value for the cultural identity of people.
- Income generation:
  "Underutilized species are capable of … offering new opportunities for income generation if their market potential is successfully recognized and developed."
- Poverty reduction:
  "Many underutilized plant species … require few external inputs for production." They hence offer opportunities for the resource-poor, who are not capable of investing in other ventures.
- Sustainable use of natural resources:
  "Locally adapted crops and animal breeds offer potential for the sustainable use of more challenging sites, such as semi-arid or mountain regions. … Local crop species and varieties fit easily into traditional sustainable farming systems geared towards maintaining or restoring soil fertility, like mixed cropping and agroforestry."

The extent to which these hypotheses apply in the reality of NUS-VCD is reviewed in the following sections by using the eight case studies[17] on which the present guidelines are based, namely:

- African Garden Egg in Ghana (Horna *et al.* 2007)
- African leafy vegetables in Kenya (Irungu 2007)
- Amla, Kokum and Tamarind in India (Daniel and Dudhade 2007)
- *Garcinia* species in South India (Kruijssen and Mysore, unpublished)
- Minor Millets in India (Gruere *et al.* 2007)
- Emmer in Turkey (Giuliani *et al.,* unpublished)
- Farro in Italy (Buerli 2006); and
- Maca in Peru (Hermann and Bernet, unpublished);

and as further study:

- Agrobiodiversity in dryland areas in Syria (Giuliani 2007).

As far as the case studies provide evidence, the following inventory takes stock of:

- observed positive changes following interventions;
- impacts that can be expected once upgrading strategies are implemented; and
- possible unexpected and unintended positive, negative or neutral impacts.

5.2.1 Social impacts

In the area of social impacts, the case studies have been examined with specific focus on effects of NUS-VC promotion on (see Box 17):

- food security and healthy nutrition;
- livelihood and pro-poor growth;
- cultural identity, including social capital;
- indigenous knowledge and skills development; and
- gender relevance.

Box 17. Social impact: Evidence from case studies

Food security and healthy nutrition

African leafy vegetables in Kenya (Irungu 2007):
Support to "farmers' training in modern production techniques, quality control and standardization of selling units" in combination with promotional activities led to the successful introduction of African leafy vegetables into supermarkets, which in turn "has given credibility to their dietary value. This has increased consumption and sales turnover even in council markets" and hence contributes to more healthy nutrition of broader parts of the population.

Farro in Italy (Buerli 2006):
"In the 1980s, the demand for emmer grew as its nutritional value and particular taste began to be appreciated by health-conscious people and gourmets. Today, emmer [farro] is processed into a range of popular, modern foods. Grown without external inputs, this adds to its reputation as a healthy food, for which consumers are prepared to pay a premium price."

Minor Millets in India (Gruere *et al.* 2007):
Minor millets "are ... a precious source of micro-nutrients ..."

▶ ▶ ▶

[17] The papers by Kruijssen and Mysore, Hermann and Bernet, and Giuliani *et al.* are expected to be made available on the GFU Web site in 2008.

Box 17 (contd.). Social impact: Evidence from case studies

Livelihood and pro-poor growth

Maca in Peru (Hermann and Bernet, unpublished):
Surveys confirm that maca in Peru "has become a source of self-employment and income for the rural poor... farmers said, [that] they no longer needed to work in mines." and "... half the total cultivated maca area is produced by small-scale farmers (1 to 3 ha of maca). ... the roots can be stored and sold for cash, providing more income security to farm households, which, in fact, have very few income options."
"Especially in Junin, the expansion of maca production has triggered the development of a number of small-scale businesses related to maca processing and commercialization... This has allowed farmers to set up family businesses, allowing them to diversify activities, and thus lowering income risks."
Furthermore, "some farmers created considerable wealth in the late 1990s, when maca prices soared, and much of the proceeds were used to buy houses, trucks and to pay for school fees." However, "Farmers choosing to re-invest profits in the expansion of cultivation were badly hit at the turn of the century ...when area expansion and intensification of cultivation resulted in oversupplies, followed by a price collapse.

Agrobiodiversity in dryland areas in Syria (Giuliani 2007):
The study results "confirm the role that diversity of plant genetic resources ... played in livelihoods of all the market-chain actor groups. The collectors emerged as the most vulnerable chain actors group in terms of livelihood assets..."

Cultural identity including social capital

African leafy vegetables in Kenya (Irungu 2007):
"The private sector is much better at mobilizing and organizing community for action. This was demonstrated when farmers in Central Kenya were organized and started growing ALVs, taking the advantage of economies of scale for training, accessibility to inputs, information, transportation, negotiation, and produce marketing. ... Unlike the government institutions, the farmers groups have clear targets and objectives. They are also endowed with collective action and social capital. Thus the importance of producers' capacity to organize themselves cannot be ignored in the promotion of ALV markets."

***Garcinia* species in South India (Kruijssen and Mysore, unpublished):**
"In Sindhudurg, kokum is a more pronounced source of income. The fact that there is a well organized horticultural society that attends the needs of the farmers and helps them market the kokum products is indicative of the progress made... Vengurla has a reasonably well functioning cooperative marketing society... Alternatively [to selling through the cooperative society], farmers can market their kokum rind individually and even obtain a slightly higher price... however, growers indicate that they prefer to deliver to the society as this is less time consuming and more secure."
Furthermore, economic benefits contribute to strengthening social cohesion: "The seed can be sold to distant processors owing to the intervention of the society that guarantees sufficient quantities for economies of scale; individually farmers are unable to do so due to high transaction costs."

Maca in Peru (Hermann and Bernet, unpublished):
"One important effect on rural welfare is the self-esteem of the native population. In contrast to the past, rural producers pride themselves in light of all the external interest in maca."
Following the collapse of the maca market in 2001/2002, negative impacts were observed: "the increased competition has lead to tensions between the main producer groups of Junin and Pasco. For example, they no longer conduct a shared maca trade fair, but have opted for separate fairs. There are reports about quarrels between the two groups concerning the establishment of product norms."

Minor Millets in India (Gruere *et al.* 2007):
"The farmers further opined that being part of the group for value-addition reduces the overall transaction costs thus increasing their share in the retail margin."

▶ ▶ ▶

Box 17 (contd.). Social impact: Evidence from case studies

Indigenous knowledge and skills development

African leafy vegetables in Kenya (Irungu 2007):
The study results lead to the assumption "that the involvement of women ... is positively related to ALV market development." and that "women's involvement in ALV production and trade favours conservation."

Minor Millets in India (Gruere *et al.* 2007):
Minor millets "provide income and empower women of local communities organized in self-help groups, thus raising their social and economic status."
" ... efforts of value-addition not only enhanced [the farming communities'] participation in markets along with increased consumption, but reduced the drudgery of women especially in the processing ..., thus improving the consumption levels."
Furthermore, "Tribal women played an essential role in [the] participatory plant breeding experiment... Thanks to their practical knowledge in seed selection, they assured that the selection approach was balanced," adding selection criteria such as yield performance, nutritious quality, taste and consistency as well as "...the vigour of the plant in the marginal agro-ecosystem along with well filled grains in the panicle".

Agrobiodiversity in dryland areas in Syria (Giuliani 2007):
"Traditionally in Syria, women are very much involved and in charge of cultivation and collection activities, while men are more dedicated to trading. The study showed a significant presence of women in market-chain activities for the species studied... Children (under the age of 12) also often took part in chain activities, in particular for seasonal work. ... Women and children are more obvious in collection activities, with a ratio of 53% and 29% respectively. Growing ... also sees the involvement of a great number of women (38%), with help from children (5% of all workers). Women are also greatly involved in post-harvesting and processing activities, at 34% of all labourers, while they are not very involved in trading, where more children (21%) than women (11%) were engaged in transporting and sales assistance."

Gender relevance

African leafy vegetables in Kenya (Irungu 2007):
The study reveals that the re-emergence of African leafy vegetables (ALV) is–among other factors–owed to traditional (ethnic) knowledge and consumption habits: "At first, these ALVs would be brought ... for a specific clientele, which included the people who come from the growing areas. ... It is therefore possible to link earlier market development to patterns of settlement in Nairobi of particular ethnic groups that had indigenous knowledge on the nutritional importance of ALVs."
"The opening up of the market outlets in the supermarkets and groceries has been achieved through farmers' training on modern production techniques, quality control and standardization of selling units, and then linking the farmers with the markets."
"The other important household characteristic is ... [the education level], which had a positive and significant influence on the number of species and sub-species grown. This factor, by contributing to the producers' human capital, most likely enhances the ability to grasp faster new production techniques and to seek any new information on ALV varieties, and generally to better coordinate farm activities even when more species and sub-species are grown."

Maca in Peru (Hermann and Bernet, unpublished):
"At the same time, important new skills have been gained along maca supply chains, related to product development and marketing. Those skills have raised the competitiveness and the attractiveness of Junin as a market place in general."

5.2.2 Economic impacts

In the area of economic impacts, the case studies have been examined with specific focus on effects of NUS-VC promotion on (see Box 18):

- income generation;
- employment creation; and
- relation between prices and adoption rates.

Box 18. Economic impact: Evidence from case studies

Income generation

African leafy vegetables in Kenya (Irungu 2007):
The following consideration should guide any intervention intended to ensure sustainable market development while avoiding market distortions: "Promotion from either supply or demand ends, without the balancing effect of the other, could be an inhibiting factor to further market development."

Farro in Italy (Buerli 2006):
"In the 1980s, the demand for emmer grew as its nutritional value and particular taste began to be appreciated by health-conscious people and gourmets. Today, emmer [farro] is processed into a range of popular, modern foods. Grown without external inputs, this adds to its reputation as a healthy food, for which consumers are prepared to pay a premium price. Between 1998 and 2000, the market grew by 15% each year and the farm-gate prices for the raw material increased by 30% each year."

Maca in Peru (Hermann and Bernet, unpublished):
"The revenue from 2 ha of maca (typical of a smallholding), must have exceeded 2 000 USD in most years. This is by far more than farmers could expect from any other agricultural activity ..., and significant income effects must have occurred as a consequence of the growing maca demand."

Minor Millets in India (Gruere *et al.* 2007):
In addition to other measures such as the introduction of suitable varieties, "market linkages were also strengthened to promote the utilization of millets, thus enhancing the profitable nature of these minor grains. These interventions contributed to the creation of value-added opportunities for minor millet products (e.g. dehusked/milled/powdered/malted products). The aim of this was to promote the consumption of minor millet grains ... locally ... in non-traditional markets ... [and] among urban consumers. ... these efforts of value-addition not only enhanced [the farming communities'] participation in markets along with increased consumption, but reduced the drudgery of women especially in the processing ..., thus improving the consumption levels."
"...discussions with the individual and farmer-members of the self-help groups producing minor millets, clearly pointed out that the returns are much higher for the new millet products (more than 50%) – even with only simple value-addition techniques... The farmers further opined that being part of the group for value-addition reduces the overall transaction costs thus increasing their share in the retail margin."

Agrobiodiversity in dryland areas in Syria (Giuliani 2007):
The study confirms the obvious hypothesis that "farmers were willing to grow and collect these species in a sustainable manner only if they received benefits from them."
"Income shares derived from the NUS-related activities varied [for the different actors along the VC] from about 10% for processors, 11% for collectors, about 22% for traders, and to 23% for growers. Results show that for processors (excluding the laurel soap producers) and collectors, the activity was certainly more marginal than for the other actors in the chain."

Employment creation

Apart from the following (negative) comment, the case studies give either no evidence on employment creation or indicate only that employment has been created (e.g. African Garden Egg in Ghana) without specifying impacts.

Emmer in Turkey (Giuliani *et al.*, unpublished):
"None of the interviewed households reported the employment of external labour for emmer production. The workers belong all to the household and involve all the members during the harvesting season (men, women and sometimes children under the age of 12)."

Relation between prices and adoption rates

Maca in Peru (Hermann and Bernet, unpublished):
Following "drastic expansion of production in 2001 and 2002", the maca market collapsed and "[the] abundant availability of dried maca at low cost attracted new companies to enter into the maca business targeting with their products the national and international markets... The low maca prices also favoured the market entry of many informal players. In contrast to the formal companies, these informal (and smaller) processors and traders avoid taxation and registration systems. ... In this informal setting, price pressure and strong competition provoked the adulteration of maca with wheat flour, causing market distortions and confusion among consumers."

5.2.3 Environmental impacts

In the area of environmental impacts, the case studies have been examined with specific focus on effects of NUS-VC promotion on (see Box 19):

- biodiversity conservation in general;
- inter- and intra-specific diversity in particular; and
- environmental protection.

Box 19. Environmental impact: Evidence from case studies

Biodiversity conservation

African leafy vegetables in Kenya (Irungu 2007):
"Past studies have shown that on-farm conservation of crop genetic resources can easily be enhanced through provision of markets ... However, increased consumer demand of certain ... species could also lead to loss of on-farm biodiversity."
According to the survey results, "the negative influence on on-farm ... biodiversity by gender is significant, implying that women's involvement in ALV production and trade favours conservation. This would also imply that women have higher and significant likelihood of diversifying the species they grow as compared to men. .... The other important household characteristic is ... [the education level], which had a positive and significant influence on the number of species and sub-species grown."

Maca in Peru (Hermann and Bernet, unpublished):
Failing to establish reliable baseline data on genetic resources "at the beginning of the crop's renaissance ... it is ... impossible to determine how the expansion of maca production has affected on-farm diversity of the crop. In each growing season, many maca seed lots are being moved across the crop's geographical range through informal seed supply systems, and no pressures favouring particular morpho- or chemotypes have become evident. Moreover, local traders may blend produce from different locations or years of production."
However, "Companies recognize the need for raw material standardization and uniformity ..., and breeding work ... is aiming at producing [higher yielding] varieties of maca ... [with] a less variable chemical composition, but no formally released and uniform seeds have become available."

Inter- and intra-specific diversity

African Garden Egg in Ghana (Horna *et al.* 2007):
"While contributing to inter-species biodiversity, the local cultivation of garden egg also helps preserve large intra-species biodiversity. The genetic diversity of garden egg is maintained by the small-scale producers. There is however a negative relationship between market development or market specialization and genetic diversity. ... In Ghana ... there is no formal seed officially released and farmers often have a mix of cultivars in their fields."
"In addition to the local diversity, some exporters buy or import improved eggplant varieties ... This is not an extensive practice but adds to the diversity observed in the market." Failing to establish an inventory on varieties and types and their specific traits, "... varieties [are not only] dispersed across sites but they are also often named differently. Furthermore, the varieties could even be the same but with different phenotypic expressions due to different biotic or abiotic factors (poor soils, salinity, drought conditions, etc.)."

African leafy vegetables in Kenya (Irungu 2007):
The survey "provides an indication [even if the findings are not significant] that diversity of traded African leafy vegetables is positively correlated to small farms. Most likely, traders with small farms are motivated to grow different inter- and intra-specific ALV species in efforts to avoid risks."

Emmer in Turkey (Giuliani *et al.*, unpublished):
"The local cultivation of emmer contributes to inter-specific biodiversity. The genetic diversity of emmer is maintained by the small-scale producers and sometimes by the poorest farmers in Turkey. This happens because the yield of emmer in the harsh environment of mountainous regions is higher than other cereal landraces." Yet another reason for these farmers to further growing emmer, are the high inputs required for producing improved cereal varieties, which they cannot afford to buy.
Although limited, "research carried out until now, gives evidence of antioxidant activity conducted by emmer." Furthermore, "there are some data available on protein contents" and the food industry "looking for 'natural resistance starch properties' in cereals ... may get interested in emmer, if there was a way to prove its properties with a sound research." This would in turn have a positive impact both on inter- and intra-specific biodiversity conservation.

▶ ▶ ▶

Box 19 (contd.). Environmental impact: Evidence from case studies

***Garcinia* species in South India (Kruijssen and Mysore, unpublished):**
The study highlights the need to upgrade VC operators' capacities to identify and value the characteristics of different varieties if impacts are aspired with regard to conserving intra-specific diversity. "Collectors were unable to distinguish between more than two varieties although biological data indicate that many more varieties are present in the wild... If collectors and processors do not identify [different traits of] ... varieties it is impossible for consumers to differentiate between them and market demand will thus not promote diversity at variety level."

Agrobiodiversity in dryland areas in Syria (Giuliani 2007):
The study results allow the assumption that "the income share of growers depended on the increase in the number of varieties grown. This indicates the value of intra-specific diversification for the benefit of grower livelihoods. In contrast, the extent of intra-species diversification among traders and the traders' income (livelihood benefit) are negatively related ... The negative correlation rate among traders can be interpreted as a threat in terms of biodiversity conservation... For processors, the use of different varieties was very weakly correlated with their income share."
Furthermore, in the case of laurel "there was no substantial differentiation among ... varieties in marketing terms for collectors, growers, processors and traders. In the case of figs, the chain actors interviewed indicated that variations were recognized among the varieties in terms of both cultivation and trade."

Environmental protection

***Garcinia* species in South India (Kruijssen and Mysore, unpublished):**
"Clearly, there is a need to introduce planting material in home-gardens if overexploitation of forest resources is to be avoided."

Maca in Peru (Hermann and Bernet, unpublished):
"The confiscation in Japan of maca contaminated with pesticide residues is widely observed and attributed to the intensification and unscrupulous use of pesticides. This provides incentives to return to the traditional ecological production of maca, and leads some companies to seek organic certification for production, which they source increasingly through contract farming. In 2006, the share of organically certified maca was 15%."

5.2.4 Final remarks on the impacts disclosed in the case studies

The evidence on impacts achieved may appear meagre. However, there could be reasons for this. First of all, change needs time. This refers to the fact that the development of capacities and structures for the sustainable development of NUS-VCs requires a sufficient timeline before measurable impacts will be produced. Secondly, it seems as if none of the case studies could draw on sufficiently detailed data describing the situation before interventions for upgrading the VCs started (baseline survey). Consequently, benchmarks for establishing a before-and-after comparison were missing. Thirdly, the foci of the studies were seemingly more oriented towards qualitative rather than quantitative analysis (perhaps due to the missing baseline data).

Last but not least, the interest of the studies centred more on impacts on food security and biodiversity conservation, and less on an in-depth assessment of economic impacts, including cost-benefit analysis along the entire VC. Although it is undisputed that income generation is a key incentive for VC operators, be they collectors, small-scale farmers, traders or processors, to engage in NUS-VCD, the studies give little evidence on concrete economic benefits, and where they do give information, they have a narrow focus on smallholder farmers, and in some cases also collectors.

However, a more holistic and realistic view of the VCD approach would also include questions such as: what impact potential has NUS-VCD beyond the farm level, since income generation and employment creation at the downstream ends of the VC have considerable potential to alleviate poverty, both at farm level through off-farm employment and at village or urban levels.

This fact also sheds light on the need to shift paradigms, as discussed in Section 4.2, in order to come to a more balanced view of the key objectives of NUS-VCD, namely socially equitable, economically viable and environmentally sustainable development of VCs of NUS.

Recommendations for the facilitation of NUS-VCD

As already broadly discussed, it is undisputed that market-oriented development of NUS through VCD and the integration of the resource-poor into VCs holds significant potential for:

- **improving food security and achieving more balanced nutrition for the rural and urban poor (social benefits);**
- **conserving biodiversity and stabilizing agro-ecosystems (environmental benefits); as well as**
- **generating income for the rural poor and creating employment along the VC (economic benefits).**

However, experiences gained with such–at least for developing countries–still quite innovative approaches to unfurling the potential of NUS illustrate how challenging it is to generate these benefits through a complex approach as reflected in the Value Chain System for Competitiveness.

In a bid to facilitate the incorporation of past experiences into the design of future approaches to NUS-VCD, lessons learnt from case studies are summarized in Section 6.1. Subsequently, guiding principles for the facilitation of NUS-VCD will be revisited in Section 6.2. Some developments that need to be observed when steering NUS-VCD processes will be examined more closely in Section 6.3. Finally, Section 6.4 gives an overview on possible economic and non-economic incentives that may encourage private sector stakeholders to commit resources to NUS-VCD, and Section 6.5 provides a checklist as guidance for facilitators of NUS-VCD.

6.1 Success factors enhancing and constraints hampering NUS-VCD – lessons learnt from case studies

This chapter summarizes the experiences from the eight case studies on which the present guidelines are based, plus an additional case study (Giuliani 2007), by discussing:

- which methodologies and instruments are working in NUS-VCD, i.e. success factors enhancing the development of VCs of NUS; and
- which methodologies and instruments are not working in NUS-VCD, i.e. constraints hampering the development of VCs of NUS.

Box 20. Summary of success factors enhancing NUS-VCD: Evidence from case studies

Success factor: characteristics of NUS

- economic benefits for VC operators (farmers, traders, industry) encouraging them to take the risk and invest in NUS;
- strategic role in the livelihood strategies and diets of rural or urban households;
- traditional knowledge and use patterns of specific ethnic groups;
- indigenous knowledge of on-farm conservation promoting *in situ* crop diversity;
- low input needs of some NUS enabling resource-poor farmers to venture into production;
- possibilities of intercropping, e.g. to bridge the non-productive time of perennial NUS-crops;
- intra-species diversity with adaptability to marginal (and different) agro-ecological conditions;
- reported traditional medicinal properties;
- specific attributes favoured by consumers (e.g. taste, texture, nutritional value, health benefits);
- possibilities and special value for industrial utilization;
- possibilities for the use of by-products (juice, pulp, essential oil from fruit, seeds, peel, rind, leaves, etc.);
- change in the perception of NUS, from 'food for the poor' to the image of healthy food for modern consumers;
- emerging (export) niche markets for biodiversity, healthy products and 'exotic' food ingredients;
- opportunities from expanding niche markets for organic products, fair-trade, corporate social responsibility; and
- possible introduction of geographical indication certification, protecting traditional landraces.

Success factor: VC operators' capacities

- capacities to seize existing or potential market opportunities (demand-driven VCD), or both;
- knowledge of markets, consumer preferences and trends, prices and price trends (market transparency);
- selection of appropriate marketing channels, e.g. with regard to specific consumer segments and/or growth potential;
- diversification of marketing channels to target different consumer segments to reduce marketing risks;
- demand expansion through consumer information and education (e.g. nutritional value, possible health effects, recipes);
- demand expansion through product innovation and/or value addition;
- existence of processing plants within the geographical reach of growers and collectors;
- interest of processors in out-sourcing primary processing (semi-finished products) to cottage-level units;
- development of technical and entrepreneurial capacities (production, processing, trading, management, marketing); and
- capacities to seize opportunities from product differentiation through quality control, branding and labelling.

Success factor: collective action

- capacity for self-organization to enhance bargaining power;
- collective action (horizontal cooperation), e.g. to bulk produce to gain economies of scale;
- collective action (horizontal) to share labour-intensive tasks;
- collective action (horizontal/vertical) to access upmarket outlets (groceries, supermarkets, export markets);
- farmer-farmer or trader-trader peer-learning, facilitating information-sharing and up-scaling of innovations;
- joint research (private-public) and information on possible industrial uses;
- collective capacity (horizontal and vertical) for quality assurance; and
- interaction across farmer, trader, processor groups or associations for exchange of experiences.

▶ ▶ ▶

Box 20 (contd.). Summary of success factors enhancing NUS-VCD: Evidence from case studies

Success factor: access to resources

- service providers offering marketing support (e.g. business linkages, contract facilitation, sales promotion);
- VC partners offering embedded services (e.g. extension services, input supplies, crop pre-financing);
- research into high-yielding varieties (e.g. additional crop per year, early harvesting, juice yield, seed characteristics);
- research into key attributes as 'Unique Selling Proposition' (USP) for final consumers or industrial use;
- research into the use of by-products;
- offer of demand- and NUS-VC-oriented training and extension services;
- transfer of know-how and technologies from other production regions;
- facilitation of business start-ups for cottage-level processing; and
- access to financial services, for example low interest rate credits.

Success factor: framework conditions

- development of product norms;
- investments in basic infrastructure to facilitate market access and reduce transaction costs;
- upgrading of market places and market management (e.g. licensing, hygiene management) to reduce transaction costs; and
- support to research (e.g. NUS for sustainable agriculture, product development, value-addition technologies).

Success factor: VCD facilitation

- assistance to unfurl the capacities of VC operators, VC supporters and VC enablers;
- holistic approach aimed at a concurrent development of the supply and demand sides; and
- sufficient time horizon and resources for interventions supporting NUS-VCD (assistance agencies, NGOs, public sector).

Box 21. Summary of constraints hampering NUS-VCD: Evidence from case studies

Constraint: characteristics of NUS

- lack of knowledge of product attributes, possible industrial uses and nutritional benefits, leading to weak demand;
- substitute products sufficiently satisfying consumer demand;
- widespread image of many NUS as poor people's food;
- unsatisfactory quality attributes (taste, colour, uniformity, shelf-life, etc.);
- competing crops (staple or cash crops) having a competitive edge with regard to income generation;
- crowding out of traditional landraces by introduction of varieties from other areas or breeding programmes;
- length of non-productive time and possible biennial bearing of perennial NUS-crops;
- pronounced seasonality, with periods of high labour requirement conflicting with the farm or household system;
- complicated and labour-intensive processing (e.g. de-hulling) compared to possible substitute products;
- increased deforestation, land-use conversion and overexploitation threatening biodiversity; and
- possible trade-offs between biodiversity conservation and poverty reduction.

▸ ▸ ▸

Box 21 (contd.). Summary of constraints hampering NUS-VCD: Evidence from case studies

Constraint: VC operators' capacities

- fragmented business linkages (vertical) resulting in high wastage rates and high transaction costs;
- scattered production sites and long distance to processing units hamper the emergence of an organized marketing network;
- inadequate and insufficient entrepreneurial capacities (strategic business management, marketing);
- inadequate and insufficient technical capacities (good production, processing, handling and trading practices);
- inadequate management of seasonal cycles (e.g. early/late varieties, scaled planting/seeding for prolonged seasons);
- insufficient information and knowledge of markets, prices and products (lack of market transparency);
- lack of capacities to observe market trends and react early to market failures (e.g. price decline due to oversupplies)
- weak bargaining power of individual small-scale farmers and collectors;
- lack of strategic marketing, preferring short-term benefits (higher prices in spot markets) over long-term market access;
- inadequate infrastructure and equipment for value addition, pre-cooling systems, storage, transport, etc;
- absence of processing industry within the geographical reach of raw material producers;
- inadequate technologies for value addition; and
- lack of innovation capacity to adapt to changing consumption trends.

Constraint: collective action

- mistrust vis-à-vis potential business partners in the VC (especially traders), thus hampering market access;
- mistrust resulting in unstable business relationships (vertical cooperation) impeding the functioning of the VC;
- imbalanced market power hampering trust-building as basis for stable business linkages (VC governance);
- mistrust impeding collective action (horizontal cooperation) to achieve economies of scale, market power, etc; and
- inadequate and insufficient organizational capacities (group or association development) for collective action.

Constraint: access to resources

- insufficient science-based information on genetic properties of species and varieties and their potential use;
- insufficient systematization of information on NUS (databases, local product names, product monographs);
- lack of neutral (i.e. unaffected by particular private sector interests) research to substantiate indigenous knowledge;
- lack of VC- or industry-driven research in developing countries, leaving the field to global players;
- inadequate *ex situ* conservation services resulting in uncontrolled seed supplies bypassing gene banks;
- inadequate research and advice on appropriate agronomic practices, post-harvest handling and processing;
- inadequate, inaccessible or absent real-time information on supply capacities, demand, prices, new technologies, etc;
- lack of regular, reliable, (if necessary) specialized and cost-efficient transport;
- inappropriate financial service institutions (especially in rural areas) and NUS-VC specific credit products;
- inadequate basic quality infrastructure and services (MSTQ – Metrology, Standardization, Testing and Quality Assurance); and
- insufficient and inadequate NUS-specific capacities of extension services and resources for outreach.

Constraint: framework conditions

- lack of or poorly designed policies to support NUS and NUS-VCD;
- insufficient supportive policies to biodiversity conservation;
- lack of harmonization of agricultural, industrial, food security and biodiversity conservation policies;
- misdirected subsidies supporting competing crops (e.g. premium paid for the use of certified seed);
- inadequate legislation or regulations restricting access of marginalized groups to genetic resources (e.g. licensing);
- lack of support to the protection of indigenous knowledge (Intellectual Property Rights, Geographical Indications);
- lack of recognition of indigenous knowledge in food safety policies and standards;
- insufficient infrastructure facilitating the organization of markets (roads, transport, energy, water, market places);
- inadequate market management (e.g. amount and manner of collecting market fees, market hygiene, storage facilities);
- misguided subsidies to production or consumption distorting market-driven VCD;
- politics-driven promotion of production or consumption without concurrent development of the other market side;
- ever-stricter food safety regulations in national and especially export markets threatening exotic food (e.g. NFR); and
- ever-increasing customer requirements in export markets (private trade and industry standards).

Constraint: VCD facilitation

- unsubstantiated, often overestimated, view of market potential; and
- possible market distortion due to insufficient knowledge on methodologies and instruments for and experiences in private sector development.

6.2 Approaches to NUS-VCD
– guiding principles for the facilitation of NUS-VCD

Summarizing, the case studies illustrate how narrow the gap can be between success (e.g. income generation, biodiversity conservation) and failure (e.g. market distortion, crowding-out of species), and hence the importance of sound and professional VCD facilitation.

NUS-VCD is not about just solving problems, but about choosing the right approaches able to unlocking the existing and prospective potential of NUS, which is still largely untapped for several reasons (see Section 1.1):

- low competitivity of actors along the entire VC, from input suppliers and producers through to traders, processors and retailers;
- limited knowledge of appropriate technology packages to promote NUS among private and public service providers;
- inappropriate rural development policies and programmes focusing on a limited number of commodities or cash crops; and
- widespread mistrust between VC operators, as well as between private and public stakeholders.

Even if obvious, necessary changes often do not take place by themselves, but need to be facilitated. With a view to giving guidance to NGOs, development organizations, assistance agencies and other parties facing the task of conserving agro-biodiversity and fostering pro-poor growth through the promotion of VCs of NUS, guiding principles have been derived from experiences and lessons learnt. While these guiding principles for the design of realistic upgrading strategies and for the professional facilitation of NUS-VCD generally apply as equally to commodities as to NUS, they in no way offer a 'one-size-fits-all' solution. Rather, appropriate principles for the selection of methodologies and instruments (see Chapter 4) have to be chosen from case to case.

Box 22. Guiding principles for the design of appropriate upgrading strategies and professional facilitation of NUS-VCD

Guiding principles for NUS-VCD

- **Let the private sector take the lead.**
  Value is generated in markets, in which the private sector has the lead. Hence, the continuous engagement of the private sector (VC operators from farmers and collectors up to consumers, their self-help organizations, existing and emerging service providers) is critical to achieving the objectives of NUS-VCD.
- **Facilitate public-private dialogue and cooperation.**
  Joint public-private commitment to gearing policies more to private sector development needs while providing for public values will result in self-inspired and self-sustained VCD in the long run. The respective roles of public and private stakeholders have to be clearly defined to obtain optimum results from joint efforts.
- **Facilitate strategic NUS-VCD.**
  The complexity of the VC system requires a strategic approach founded on a sound analysis of the VC system, serving as basis for the identification of key entry points and the design of a realistic and realizable VC upgrading strategy.
- **Use change agents.**
  Approaches should draw on change agents (opinion leaders), capable to giving an impetus to the process of VCD by taking up innovations and creating success stories that will motivate others to replicate. Change agents have to be identified along the entire VC, among service providers, in government institutions and the administration.

▸ ▸ ▸

Box 22 (contd.). Guiding principles for the design of appropriate upgrading strategies and professional facilitation of NUS-VCD

- **Identify concrete benefits.**
  Decisions on whether or not to promote VCD of certain NUS should always be based on substantiated expectations of the return on investment for all operators along the entire chain, since benefits are necessary to motivate VC operators (and supporters) to cooperate and commit resources to NUS-VCD.
- **Start from the demand side.**
  Orienting supply decisions to realistic and realizable existing or potential market opportunities is an essential premise for success, since VCD only translates into income once consumers buy the product. This includes the possibility of 'creating demand' through consumer information and education to unlock potential market opportunities.
- **Consider competitiveness as key to successful VCD**.
  Competitiveness is a precondition for successful marketing. Competitiveness refers to benefits offered to potential customers (prices, attributes, reliability and continuity of supplies, etc.) as compared to the offer of rival suppliers or potential substitute products in the market.
- **Apply holistic approaches, including:**
  - harmonizing approaches to pro-poor growth, food security and biodiversity conservation:
    It is necessary to balance social, economic and environmental objectives aspired and harmonize the respective approaches with a view to avoid that one overrides the others putting the overall objective of NUS-VCD at risk; and
  - synchronizing policies (agricultural, industrial, environmental, health, trade and financial policies, etc.):
    Since there are no one-dimensional relations between market failure and certain sector policies, framework conditions are set by different government sectors, which have to be better synchronized.
  - applying a systems approach addressing all levels of the VC System for Competitiveness.
    VCD facilitation has to address all levels of the complex system of inter-related linkages and structures involving VC operators, VC supporters, VC enablers as well as VC attitudes.
  - applying an integrated approach encompassing all VC stages.
    Only supporting farmers or collectors is too narrow. Successful and sustained NUS-VCD can only be achieved if (formal or informal) cooperation is promoted along the entire VC encompassing all operators (vertical cooperation).
- **Support change at the level of VC-attitudes.**
  The success of VCD largely depends on building social capital, in particular facilitating trust and strengthening networks. Hence, VCD facilitation aims at supporting reliable business relations based on transparent cooperation and trustful collaboration. This can best be achieved through participatory and process-oriented approaches.
- **Strengthen VC governance.**
  Aiming at facilitating market access through the inclusion of the resource-poor into VCs can best be achieved through assuring equitable benefits for all business partners within the VC. Otherwise, business relations break due to supply or payment irregularities. To avoid this, effective VC governance structures have to be established.
- Strengthen linkages between research and VC operators.
  Closer coordination between VC operators (in particular farmers and processors) and research institutions will facilitate the integration of indigenous knowledge into science-based knowledge development and the adoption of VC needs into the research agenda (e.g. identification of NUS-attributes, technology transfer, product development).
- **Support the development of innovation capacities.**
  Without continuing innovation, VC operators may be challenged with decreasing prices and the risk to be squeezed out by stronger competitors. To unlock market potential and maintain shares in dynamic markets, operators have to continuously observe market and technology developments and introduce innovations.

▶ ▶ ▶

Box 22 (contd.). Guiding principles for the design of appropriate upgrading strategies and professional facilitation of NUS-VCD

Guiding principles for the modes of delivery of VCD facilitation (see Section 4.2)

- **Apply an approach that creates stakeholder accountability.**
  Provide for an exit strategy right from the start by leaving accountability for VCD with the private and public actors within the VC System (the commitment of the private sector can best be ensured through cost-sharing right from the beginning).
- **Apply a demand-driven, participatory and process-oriented approach.**
  Enable stakeholders to develop their self-help capacities to design objective-oriented strategies, plan, implement and monitor VC upgrading activities.
- **Apply an approach that creates significant impacts while facilitating up-scaling.**
  Create quick-win projects to achieve stakeholder commitment while providing for sufficient resources and time horizon to support the achievement of significant and broad impacts.
- **Apply a bottom-up-top-down approach.**
  Involve a critical mass of innovative VC operators ready for change (bottom-up) and support the structures at the macro- and meso-levels to facilitate VCD (top-down).
- **Support the coordination with other development efforts.**
  Usually resources from single sources are insufficient for supporting VCD. Where possible, efforts should therefore be coordinated with programmes for the promotion of local economic development, non-traditional exports or similar.
- **Support structure building and capacity development as an exit strategy.**
  Striving for self-inspired and self-sustained NUS-VCD beyond external project support (exit strategy), structure building and capacity development for NUS-VCD is needed at all levels of the VC System for Competitiveness.

6.3 Facilitating VCD
– possible threats to NUS-VCD to be monitored and controlled

While the set of principles discussed above for the design of realistic upgrading strategies and the professional facilitation of NUS-VCD gives guidance for the selection of appropriate methodologies and instruments, the challenge remains of monitoring and controlling possible threats to the objectives of food security, pro-poor growth and biodiversity conservation. Experience shows that certain developments have to be monitored in order to enable VCD facilitators and stakeholders to take appropriate action in case unintended negative impacts become obvious. These developments are:

- effects of the adoption rate on prices and income;
- effects of NUS-VCD on pro-poor growth; and
- effects of the adoption rate on inter- or intra-specific biodiversity, or both.

Often, 'the market' is held responsible for failures in ensuring food security, achieving broad-based pro-poor growth or securing biodiversity conservation. Likewise, traders and processors are habitually perceived as exploiting the weak upstream operators in the VC. However, this simplistic view of the reality–'the market' is an anonymous construct, and farmers or collectors cheat as frequently as traders or processors–hardly leads to constructive solutions. In fact, significant and broad impact will only be achieved when turning these threats posed by 'the market' and strong business partners into opportunities. Effects related to these threats and possible measures that can be taken by VCD facilitators trying to transform challenges into promising perspectives will be discussed hereafter.

6.3.1 Effects of the adoption rate on prices and income

"When underutilized crops are promoted, strong price fluctuations must be anticipated. Once the public is aware of the consumption benefits of a crop with marginal production, increased demand will in any case raise producer prices. Small-scale farmers face constraints (e.g. lack of seed, access to land and labour) that cannot be overcome in the short term, and they can therefore not keep up with the growth of demand. The maca case shows that the resulting high farm-gate prices are not only a strong incentive for farmers to further invest in the crop, but that also non-governmental and governmental institutions tend to 'jump on the bandwagon of a new crop'. Eventually, however, high prices will lead to over-production and the inevitable collapse of prices, at considerable social costs for farmers and rural areas." (Hermann and Bernet, unpublished)

Falling prices with increasing adoption rates are not specific to NUS-VCD, but apply to any innovation introduced into markets. There is a natural continuum between opening a market, reaching significant market share, and oversupply, especially in niche markets and in developed markets, in which the lifecycle[18] of products becomes ever shorter. Aiming at achieving broad impacts in terms of pro-poor growth, food security and biodiversity conservation, high adoption rates as a result of new entrants to the markets should be welcome. However, probable supply and demand development have to be anticipated and appropriate measures taken to avoid market failure.

The phenomenon of price fluctuations cannot be ruled out, but the occurrence can be deferred and the effects can be smoothened through measures such as (see also Chapter 4):

- building capacities of VC operators to observe market trends, including competitors and possible substitute products that are entering the market, as well as changes in consumer preferences, to be able to react in time (usually a collective action of operators along the VC);
- assuring balanced development of supply and demand sides (especially in case of niche markets) to avoid market failure due to over- or under-supply and resulting drastic price declines or increases that put the livelihoods of the poor at risk;
- supporting branding schemes to control new entrants into the market, but due consideration needs to be paid to the fact that branding adds to transaction and marketing costs (certification and sales promotion) and should therefore be based on a sound cost-benefit analysis; and
- building capacities for continuous innovation to enable VC operators to stay competitive and ensure (preferably increase) income levels over time through product development and market diversification.

6.3.2 Effects of NUS-VCD on pro-poor growth

"NUS are very adaptable to marginal environments, where the most fragile groups live, they represent a source of income of particular significance for those groups, in particular women and children, who can harvest these species from the wild, having land and labour access within the boundary of their community villages, often exploiting uncultivated areas. For this reason, the sustainable use of these species and their conservation is so important." (Giuliani 2007)

However, with regard to on-farm agro-biodiversity conservation, Kruijssen and Mysore (unpublished) leave the following concern for consideration: "Although, the approach is considered to have high potential to improve the well-being of the rural poor, a critical analysis is needed on the trade-off between biodiversity and poverty reduction."

With regard to possible impacts of NUS-VCD on pro-poor growth, Fujisaka *et al.* (unpublished) conclude from the assessment of nine case studies that

[18] Product lifecycle is the course of a product's performance (sales and profits) over time. The product lifecycle spans five stages: product development, introduction, growth, maturity and decline.

"We believe that benefits can and should accrue to the poor; but that the difficulties involved should not be ignored. Furthermore, benefits need to be considered beyond the farm level: in some of the successful cases a range of ancillary services and industries sprung up around the crop providing rural income without necessarily greatly increasing farm income."

In addition to these considerations, effects of NUS-VCD on pro-poor growth also depend on:

- the conditions and capacities to achieve spillover effects from early adopters of NUS as a new venture, supported by programmes promoting NUS-VCD, to further target populations to achieve adoption rates that translate into broad pro-poor growth; and
- the (usually) unequal distribution of negotiating power within the VC, resulting in an unbalanced allocation of profit margins, generally to the detriment of farmers and collectors, who are usually the weakest link in the VC.

Realities such as trade-offs between biodiversity conservation and poverty alleviation and power imbalances between operators at different stages of the VC, as briefly described earlier, cannot be ruled out at any rate, but the role of VCD facilitators is, among others, to mitigate imbalances through creating awareness and developing capacities. Possible measures include (see also Chapter 4):

- analysing the vulnerability context (Sustainable Livelihood Framework) and assessing the capacities of potential target populations to invest (land, labour, capital, social networks) in NUS-VCD;
- strengthening the negotiating power of farmers and collectors through capacity development in the fields of business management (e.g. cost calculation and price derivation), marketing skills and collective action for economies of scale;
- assisting the revelation of mutual interest in long-term business relationships along the VC for ensuring market access for farmers and collectors on one side, and timely, consistent and quality supplies for downstream VC partners on the other side, while establishing an incentive scheme with profitable margins for farmers and collectors;
- facilitating value addition through integration of upstream (e.g. production of inputs) and/or downstream VC functions (e.g. trading, processing) at farmer or collector level, based on a sound analysis of costs and benefits, as well as of the needs for human, financial and further resources;
- identifying change agents (opinion leaders) within the poor communities, capable and willing to commit resources to the proposed venture and—by creating a success story—motivating other community members and neighbouring communities to follow suite (spillover effect); and
- supporting access to and development of NUS-related off-farm income (e.g. cottage-level processing, NUS-specific service provision to farmers and collectors) and employment opportunities (e.g. in the input or processing industry) for the poor, and monitoring impacts on poverty alleviation.

6.3.3 Effects of the adoption rate on inter- and intra-specific biodiversity, or both

Last but not least, the question remains,

"How can resources be secured through linkages and collaborations, involving producers, consumers, the formal and informal sectors, to ensure that both conservation through use and conservation for use can be sustained?" (Padulosi *et al.* 2002)

Since the global food market is increasingly based on a narrowing range of species, inter- and intra-specific biodiversity have been drastically endangered, and once-important species face genetic erosion and some even extinction. At the same time, in many traditional farming systems worldwide, the contribution of agro-biodiversity

is fundamental to food security and nutrition, ecosystem stability and income for the rural poor. However, this potential is still largely untapped. One reason is that the market demands uniform products, inducing farmers to only produce certain species or varieties while neglecting inter- and intra-specific diversity. While fostering VCD, this reaction to market signs works against biodiversity. However, markets might become driving forces for biodiversity when customers demand species that otherwise would no longer be cultivated.

Referring to several studies, Irungu (2007) confirms

"... that on-farm conservation of crop genetic resources can easily be enhanced through provision of markets ... However, increased consumer demand of certain ... species could also lead to loss of on-farm biodiversity."

On the same line of thinking, Kruijssen and Mysore (unpublished) come to the conclusion that

"There are many examples, in which certain species collected from the forest have almost reached extinction due to market forces. This stresses the importance of a holistic approach that brings these species under cultivation and at the same [time] re-governs the market for these species in order to bring sustainable benefits to the poor communities maintaining and utilizing them."

In contrast, successful on-farm production of domesticated species can contribute to poverty-alleviation while conserving agro-biodiversity, thanks to reduced pressure on wild resources. Furthermore, diversified livelihood strategies based on inter- and intra-specific on-farm biodiversity should contribute to making households of the resource-poor less vulnerable, since they provide for balanced nutrition (subsistence uses) and may involve more balanced labour requirements throughout the year, compared with monoculture-oriented farming systems with accentuated peak seasons. Inter- and intra-specific on-farm biodiversity can also provide income from marketable surpluses of diverse products, reducing the risk and vulnerability in case of crop failures.

However, inter- and intra-specific on-farm biodiversity also presents some challenges: the need to develop managerial, technical and marketing capacities for diverse crops; to procure diverse inputs; and to produce and market very small quantities of various crops. Against this background, it becomes obvious that business decisions of small-scale farmers on inter- and intra-specific on-farm biodiversity have to be based on a well founded appreciation of economic, social and nutritional benefits, with biodiversity considerations taking second place.

Aiming at promoting biodiversity through commercial approaches, it will be necessary to reduce risk for farmers integrating NUS into their farming systems. To that end, the following measures can be taken (see also Chapter 4):

- assessing costs and benefits of the integration of NUS into prevailing farming and household systems to ensure that food security can be improved and stable income achieved;
- developing suitable solutions for integrating NUS into prevailing farm and household systems on the premise that they ensure a better livelihood than the current farm or household system;
- creating awareness of the need to diversify farm and household incomes to reduce risks of crop failures;
- building technical, managerial and marketing capacities to enable farmers to realize yields and qualities that ensure market access at cost-recovering prices and reasonable profit margins;
- facilitating collective action (horizontal cooperation) to support joint learning, joint solutions to production and marketing challenges, and economies of scale;
- facilitating market linkages (vertical cooperation) to ensure market access under fair terms (reliability of linkages and fair margins); and
- promoting *ex situ* conservation to ensure inter- and intra-species conservation where on-farm conservation is not promising due to production or marketing constraints.

6.4 Identifying concrete benefits of NUS-VCD
– pattern of economic and non-economic incentives

In their manual on 'Incentives for Sustainable Resource Use', Fischer *et al.* (2004) define incentives as

> **"... factors that motivate human behaviour. They can be positive and foster certain behaviour, but they can also act as disincentives and deter people from doing something. Incentives can be material, but also non-material. Reputation and appreciation are examples of non-material incentives."**

The success of any endeavour aimed at promoting market-oriented development of NUS depends to a large extent on the willingness and preparedness of stakeholders to commit resources, develop their capacities and join forces for NUS-VCD. It is often argued that the resource-poor are not capable of investing in new ventures. However, this depends on:

- the type of capital that needs to be invested, which is not necessarily financial (e.g. savings, access to credits) but may as well be human capital (e.g. indigenous knowledge, skills and the ability to work), natural (e.g. access to land for production or to wild resources for collection), physical (e.g. access to transport, water, energy) or social (e.g. networks, trust, access to service institutions); and
- the possibility of reducing the risks of investments in new ventures for the resource-poor in order to minimize any adverse effects on their livelihoods and to overcome the widespread risk adversity of small-scale farmers and collectors, by identifying realistic and realizable benefits from any commitment of resources to the integration of NUS into their farm or household system.

This calls for a solid analysis of the livelihood framework and concrete benefits, prior to embarking on any NUS-VCD project. In the light of the crucial role business linkages play in ensuring market access for farmers and collectors, benefits also have to accrue at up- and downstream VC stages to achieve the commitment of all operators along the VC. This is especially true for those NUS that are predominantly promoted for reasons of biodiversity conservation (public value) and do not, at least at first sight, present a real benefit for VC operators (private value). To a certain extent, NUS businesses will emerge from market trends taken up by innovative producers, processors or traders. The promise of benefits, encouraging VC operators to embark on these ventures, can be referred to as market-induced economic incentives (see Box 23). Further economic incentives comprise tax incentives, public subsidies and suchlike. For broader impacts on biodiversity conservation through commercial approaches, non-economic incentives also play a role: effective and efficient public and private services, an enabling environment, and social capital fostering collective action.

It is a widespread misconception that incentives are just public subsidies. The discussion above, however, shows that there are further types of incentives, such as market-induced, but also service-induced, socially-induced and others. Furthermore, one can distinguish between incentives fostering and disincentives hampering efforts to achieve food security, pro-poor growth and biodiversity conservation through NUS-VCD. The task of VCD facilitation is to assist VC stakeholders to seize opportunities from incentives and to avoid or mitigate respectively possible effects from disincentives.

Box 23. Encouraging VC operators' commitment to NUS-VCD:
Pattern of economic and non-economic incentives and disincentives for NUS-VCD

Economic incentives

Incentives fostering NUS-VCD†

Market-induced (micro-level):
- income generation in growing specialty markets:
  - demand from ethnic groups
  - demand from higher income urban consumers
  - non-traditional export markets
  - industry demand for food ingredients
  - industry demand for commodity substitutes
  - collapse of commodity prices
- higher profit margins through:
  - improved/balanced VC governance
  - reduced transaction costs along the VC
  - upmarket outlets (supermarkets, groceries)
  - compliance to industry-specific standards
  - compliance to standards

Service-induced (meso-level):
- access to NUS-specific financial services:
  - long-term credit packages for investments
  - credit packages for business start-ups
  - short-term loans for crop pre-financing
  - short-term loans for bridging time for payments
  - embedded services (e.g. crop pre-financing)
- market management reducing transaction costs

Policy-induced (macro-level):
- direct/indirect subsidies:
  - direct payments for the production of NUS
  - processing subsidies for NUS
  - consumer price subsidies to facilitate sales of NUS
- tax reduction/tax holidays for
  - investments into value-addition
  - establishment of export markets
- credit guarantee funds for investments into NUS
- infrastructure investments reducing transaction costs

Other:
- credit guarantee funds from development partners

Disincentives hampering NUS-VCD‡

Market-induced (micro-level):
- lower profit margins due to:
  - high transaction costs of unorganized small-scale producers/VC operators
  - lack of market transparency and resulting weak negotiation power of farmers
  - weak governance structures resulting in unequal distribution of profit margins
  - low quality (especially external attributes such as colour, shape, uniformity)
  - preference for short-term spot market gains over long-term profitable linkages
- increasing competition from imports and substitute products
- increasing market-access requirements (standards)
- increasing costs for certification of compliance with standards

Service-induced (meso-level):
- access to credits easier for commodities than for NUS
- collateral requirements and interest rates limiting access for the resource-poor

Policy-induced (macro-level):
- subsidies for commodities competing with NUS for land/labour and markets
- multiple taxes (e.g. levies for collection, transport, stalls on rural and urban markets)

Other:
- possible trade-off between biodiversity conservation and income generation

▶ ▶ ▶

Notes: † see also: Box 1 (Drivers as opportunities) and Box 20 (Summary of success factors enhancing NUS-VCD)
‡ see also: Box 1 (Drivers as challenges) and Box 21 (Summary of constraints hampering NUS-VCD)

Box 23 (contd.). Encouraging VC operators' commitment to NUS-VCD:
Pattern of economic and non-economic incentives and disincentives for NUS-VCD

Non-economic incentives

Incentives fostering NUS-VCD†	Disincentives hampering NUS-VCD‡

Market-induced (micro-level):
• existing business linkages that can be used for NUS
• awareness on need for diversified cropping systems
 	
Service-induced (meso-level):
• access to NUS-specific inputs:
  • availability and access to seeds of local varieties
• access to NUS-specific non-financial services (BDS):
  • R&D results on improved varieties
  • R&D results on innovative products and technologies
  • information/advice on market opportunities
  • specific training courses for NUS
  • monographs and advice on good agricultural practices
  • monographs and advice on good collection practices
  • monographs and advice on organic production, etc.
  • embedded services (extension, logistics, etc.)
 	
Policy-induced (macro-level):
• policies, strategies and interventions for:
  • NUS-specific research
  • promotion of biodiversity conservation
  • promotion of non-traditional/NUS exports
  • consumer protection, awareness, education
• international agreements on biodiversity conservation
• legislation allowing/enabling farmers/collectors to:
  • sell (un-registered) seeds of NUS
  • acquire collection licences
• (public) recognition of biodiversity conservation
 	
Socially-induced (meta-level):
• trust and social cohesion
• awareness on nutritional benefits of NUS
 	
Other:
• technical support from development partners
• rising need for climate-tolerant species
	Market-induced (micro-level):
	• fragmented VC linkages increasing wastage rates and transaction costs
	• risk of commoditization of NUS resulting in reduction of on-farm biodiversity
	• disappearance of indigenous knowledge due to commoditization/urbanization
	• increasing demand for global brands, for which NUS lack scale
	
	Service-induced (meso-level):
	• lack of (improved) seeds of local varieties from on-farm production or gene banks
	• lack of R&D into genetic properties, value-addition and improved technologies
	• extension service capacities and resources geared to competing commodities
	
	Policy-induced (macro-level):
	• lack of protection of indigenous knowledge and Intellectual Property Rights (IPR)
	• marketing of seeds restricted to registered varieties and seeds
	• export promotion geared to cash crops and high-value commodities other than NUS
	
	Socially-induced (meta-level):
	• decreasing diet-variety, especially of the urban population and in export markets
	
	Other:
	• risk of crop failures due to climate change
	• risk of commoditization of NUS resulting in unsustainable collection practices
	• ill-conceived support programmes based rather on symptoms than on causes

Notes: † see also: Box 1 (Drivers as opportunities) and Box 20 (Summary of success factors enhancing NUS-VCD)
‡ see also: Box 1 (Drivers as challenges) and Box 21 (Summary of constraints hampering NUS-VCD)

6.5 Approaches to NUS-VCD
– checklist for the facilitation of NUS-VCD

As discussed in Chapter 3, the complexity of the VC system requires a strategic approach to developing VCs, which starts with the selection of NUS that merit to be promoted for their economic, social and environmental potential (Step 1 – see also Figure 1). The VC promotion cycle continues with a sound analysis of the VC system (Step 2) followed by the identification of entry points for NUS-VCD: opportunities fostering and constraints hampering VCD (Step 3). Based upon agreed priority entry points, stakeholders will then design an upgrading strategy (Step 4). The planning phase is followed by Step 5, the implementation cycle, consisting of implementation of interventions to strengthen VC competitiveness, monitoring of progress and, if necessary, refinement or revision of the strategy. The proposed checklist follows this VC promotion cycle.

Box 24. Checklist for the promotion of NUS-VCD

General recommendations

Since there is no generally applicable approach to NUS-VCD, as methodologies and instruments have to be selected case-by-case based on a sound situation analysis, this checklist does not claim to be all embracing, and should consequently be used in a flexible way.

Recommendations
- Apply the 'Guiding principles for NUS-VCD' and 'Guiding principles for the modes of delivery of VCD facilitation' listed in Box 22.
- Use the recommendations for the course of actions and events to implement the five steps to participatory VCD given in Section 3.2.
- Implement the entire process in a participatory way by involving relevant stakeholders from the very beginning to ensure their commitment and contributions.
- Facilitate in particular the participation of VC operators, since real-life entrepreneurial risks and decisions are at stake and VC operators are, in fact, the owners of the VC.
- Adopt an action-oriented (participatory) method giving, where appropriate, stakeholder (indigenous) knowledge preference over expert surveys.
- Implement quick-start projects during the analytical phase to achieve commitment of stakeholders, facilitate trust-building and pilot test possible interventions.
- Avoid inflation of workshops by splitting them into key stakeholder meetings and broader stakeholder forums (see Section 3.2); and offer value added information at each event to motivate participants.
- Disseminate the results of the VC analysis to build VC knowledge among stakeholders as a basis for self-sustained VC development.

Step 1 – Selection of NUS that merit to be promoted

The success of a VC project depends to a considerable degree on the selection of NUS that merit to be promoted, based on an assessment of their existing or realistic and realizable prospective market potential.

Recommendations
Select NUS with key stakeholders from the private and public sectors through a rapid assessment of:
- existing and/or potential market opportunities; and
- prospective supply chain competitiveness,

by
- avoiding speculations on market opportunities and supply competitiveness and
- applying the criteria for the selection of NUS listed in Section 3.1 in a flexible way.

▶ ▶ ▶

Box 24 (contd.). Checklist for the promotion of NUS-VCD

Step 2 – VC analysis/VC mapping

VC analysis/VC mapping is not an end in itself, but aims at gaining knowledge of the business reality as a basis for elaborating viable VC upgrading and promotion strategies. The purpose of VC analysis is to identify concrete benefits for operators, motivating them to cooperate and commit resources, to identify entry points for VC Development and to derive viable VCD upgrading strategies.

Recommendations

- Consider a solid analysis as essential for developing a viable intervention strategy.
- Limit analysis to assembling information that is really necessary to develop solutions conducive to VCD.
- Involve traditional and expert knowledge in an interdisciplinary team.
- As need arises, organize more in-depth analysis during the course of implementation of the upgrading strategy.

Guiding questions

- VC operators (micro-level):
  - VC structure: who are the VC operators, which functions do they fulfil, how competitive are their products, which features influence their attitudes, which VC functions represent main cost drivers and hence may be a leverage point?
  - VC size and performance: how does the VC perform, which number of farms/firms and jobs are involved at every stage, which values and volumes of produce are at stake?
  - VC governance: how can the VC organization be described, who are lead actors, how are up-stream and down-stream VC linkages functioning, how are market power and gains distributed among VC operators?
- VC supporters (meso-level):
  which services are needed at different stages of the VC, which service providers could support VC development, where are they located, which services do they offer, which capacities have they got, which service gaps exist?
- VC enablers (macro-level):
  which (inter)national framework conditions (macro-economic, political, legal, legislative, administrative, infrastructure) influence (enable or hinder) VC development?

Step 3 – Assess opportunities and identify entry points

The objective is to identify challenges and opportunities that are critical to VCD and could hence be used as entry/leverage points to either overcome constraints or seizing opportunities.

Guiding questions

- Which features of the VC foster and which hamper the integration of the resource-poor into the VC?
- Which features of the VC foster and which hamper biodiversity conservation?
- Which features of the VC restrict its competitiveness and which opportunities have not yet been seized due to:
  - Inefficient implementation of functions at certain VC stages?
  - Weak linkages between the VC operators (horizontal, vertical)?
  - Inefficient or non-existent support services (capacities, needs-orientation, etc.)?
  - Insufficiently conducive framework conditions?
- Which interventions can really make a change in a given VC context (entry or leverage points for VCD)?

▸ ▸ ▸

Step 4 – Develop an upgrading strategy

Based on the VC analysis (Step 2, above) and the assessment of opportunities and the identification of points of leverage (Step 3), a realistic and realizable upgrading strategy can be designed drawing on the wide variety of methodologies and instruments described in Chapter 4.

Recommendations
To derive a viable intervention strategy and assure the commitment of stakeholders, the strategy should specify:
- the vision for VCD (jointly agreed by stakeholders);
- the leverage points to be addressed;
- the solutions proposed, i.e. appropriate methodologies and instruments to address the leverage points;
- the performance and impact indicators measuring progress; and
- the various stakeholders taking responsibility for implementing parts of the upgrading strategy, in line with their specific roles in and capacities for NUS-VCD.

The strategy development process should be complemented by
- an action plan specifying stakeholder responsibilities and setting a timeframe for the implementation; and
- the creation of a steering group to coordinate the implementation of the NUS-VCD process.

Step 5 – Implement the upgrading strategy, monitor progress and refine the strategy

Many stakeholders form part of the VC system and many of them have a stake in implementing the VCD strategy. Consequently, the participatory approach aims at developing a concerted and holistic approach, in which diverse actors take their responsibilities to address the manifold and interlinked challenges in the VC system.

Recommendations
Provide for an exit strategy right from the beginning by agreeing on a clear division of tasks between private and public actors contributing to VC Development, and facilitating them to assume their responsibilities:
- identify change agents among VC operators as chain leaders willing to and capable of assuming responsibility for motivating a critical mass of VC operators to contribute to upgrading VC performance;
- identify change agents in support service organizations willing to and capable of assuming responsibility for upgrading institutional capacities to support VC Development; and
- identify change agents in government institutions and administration willing and capable of assuming responsibility for upgrading framework conditions.

Develop an up-scaling concept to assure broad impact with regard to food security, pro-poor growth and biodiversity conservation by facilitating:
- structure building and capacity development aimed at facilitating self-inspired and self-sustained NUS-VCD (see: Sustainable Development Approach – Section 2.4);
- strategic partnerships of VC operators, supporters and enablers with organizations that could contribute to NUS-VCD (e.g. facilitation of access to organizations funding biodiversity programmes or providing technical assistance); and
- monitoring of impacts as a means to facilitating participatory steering of the VCD process and refining the upgrading strategy if need arises.

Source: adapted from Will (2007)

Bibliography and further reading

Bibliography and further reading

Almekinders, C. No date. Farmers as bankers: Community seed banks. GTZ Sector Project "People and Biodiversity in Rural Areas" (Unit 45). *Issue Papers Biodiv*.
Available online at: www2.gtz.de/agrobiodiv/download/Themenblaetter/Saatgutbanken_engl_05.pdf

Almekinders, C. No date. Markets make a comeback: Diversity displays and seed fairs. GTZ Sector Project "People and Biodiversity in Rural Areas" (Unit 45). *Issue Papers Biodiv*.
Available online at: www2.gtz.de/agrobiodiv/download/Themenblaetter/Saatgutmaerkte_engl_05.pdf

Altenburg, T. 2007. Donor approaches to supporting pro-poor value chains. Report prepared for the Donor Committee for Enterprise Development, Working Group on Linkages and Value Chains. July 2006 (rev. January 2007).
Available online at: www.sedonors.org/resources/item.asp?resourceid=386

Bernet, T., Thiele, G. & Zschocke, T. 2006. Participatory Market Chain Approach (PMCA) – User Guide. International Potato Center (CIP), Lima, Peru.
Available online at: http://papandina.cip.cgiar.org/fileadmin/PMCA/User-Guide.pdf

Buerli, M. 2006. Farro in Italy – a desk study. Commissioned by the Global Facilitation Unit for Underutilized Species, Rome, Italy. Available online at: www.underutilized-species.org/record_details.asp?id=495

CBD [Convention on Biological Diversity]. No date. Biodiversity Glossary.
Available online at: www.cbd.int/cepa/toolkit/html/resources/FD/FDF8CE88-237B-46EE-BB5F-42304D735C23/Biodiversity%20Glossary.pdf

Chipeta, S. 2006. Demand-Driven Agricultural Advisory Services. Neuchatel Group, published by GTZ and SDC.
Available online at: www.neuchatelinitiative.net/english/index.htm

Christinck, A. No date. Underutilized species: Rich potential is being wasted. GTZ Sector Project "People and Biodiversity in Rural Areas" (Unit 4411). *Issue Papers Biodiv.*
Available online at: www.gtz.de/de/dokumente/en-agrobiodiv-issue-underutilized-species-2005.pdf

Collins, W.W. & Hawtin, G. 1998. Conserving and using crop plant biodiversity in agro-ecosystems. *in:* W.W. Collins and C. Qualset (editors). *Biodiversity in Agroecosystems.* CRC Press, Washington, USA.

Committee of Donor Agencies for Small Enterprise Development. 2001. Business Development Services for Small Enterprises: Guiding Principles for Donor Interventions.
Available online at: www.bdsknowledge.org/dyn/bds/docs/BDS%20GPs%202001%20English.pdf

Daniel, J.N. & Dudhade, P.A. 2007. Analysis of Economic Characteristics of Value Chains of Three Underutilised Fruits of India. Study commissioned by The International Centre for Underutilised Crops (ICUC), Colombo, Sri Lanka, and BAIF Development Research Foundation, Pune, India.
Available online at: www.icuc-iwmi.org/files/Publications/ICUC-RR%20Issue%203_Final.pdf

Deloitte. 2003. Deloitte study reveals only 7% of manufacturers are effectively managing their supply chain – Global Benchmarking Report Links Supply Chain Management to Financial Performance. Available online at: www.deloitte.com/dtt/press_release/0,1014,sid%253D18218%2526cid%253D34455,00.html

den Hartog – *see* Hartog, den

DFID [Department for International Development, UK]. 2001. Sustainable Livelihood Guidance Sheets. DFID, London, UK. Available online at: www.livelihoods.org/info/info_guidancesheets.html#1

DFID. 2007. Making Value Chains work better for the poor – A Toolbook for Practitioners of Value Chain Analysis. Making Market Systems work better for the Poor (M4P).
Available online at: www.markets4poor.org/?name=publication&op=viewDetailNews&id=964

Dugue, M.J. & Le Coq, J.F. 2006. Pedagogical materials on Farmers' Organizations and Farmers' Organizations' support. CIRAD and CIEPAC.
Available online at: www.cirad.fr/ur/index.php/politiques_et_marches/services_produits

Elliott, D. 2006. Understanding embedded business services. The Springfield Centre. *Rural Development News* 1/2006. Available online at: www.springfieldcentre.com/publications/sp0606.pdf

Evolve Consulting and terra fusca. 2007. Concept Note: Development of Protected Geographical Indications or Designations of Origin for exploring niche markets and creating income opportunities for smallholding farmers in Eastern Africa. Available online at:
www.amberfoundation.com/?&download=Concept%20Note%20Prospects%20of%20PGI%20in%20Eastern%20Africa.pdf

Eyzaguirre, P. & Dennis, E. 2003. The impacts of collective action and property rights on plant genetic resources. Draft paper. Available online at: www.capri.cgiar.org/pdf/GReyzaguirre.pdf

FAO [Food and Agriculture Organization of the United Nations]. 1994. The group promoter's resource book: a practical guide to building rural self-help groups. Sustainable Development Department (SD).
Available online at: www.fao.org/sd/2001/PE0303_en.htm

FAO. 1995 [Updated 1999]. The group enterprise book: A practical guide for group promoters to assist groups in setting up and running successful small enterprises. Sustainable Development Department (SD).
Available online at: www.fao.org/sd/PPdirect/PPre0018.htm

FAO. 1996. Report on the State of the World's Plant Genetic Resources for Food and Agriculture. Prepared for the International Technical Conference on Plant Genetic Resources, Leipzig, Germany, 17–23 June 1996. FAO, Rome, Italy

FAO. 2001 [Updated 2002]. The inter-group resource book: A guide to building small farmer group associations and networks. Sustainable Development Department (SD).
Available online at: www.fao.org/sd/2001/pe0701_en.htm

FAO. 2005. Rapid Guide for Missions: Analysing local institutions and livelihoods - Guidelines. Prepared by A.S. Carloni and E. Crowley. *[FAO] Institutions for Rural Development,* No. 1.
Available at: ftp://ftp.fao.org/docrep/fao/008/a0273e/a0273e00.pdf

FAO. 2006. Community Diversity Seed Fairs in Tanzania: Guidelines for seed fairs. FAO LinKS project – gender, biodiversity and local knowledge systems for food security. Report no 51.
Available online at: ftp://ftp.fao.org/docrep/fao/009/ag387e/ag387e00.pdf

FIAS [Foreign Investment Advisory Service]. 2007. Moving toward Competitiveness: A Value-Chain Approach. The World Bank Group. Available online at:
www.ifc.org/ifcext/fias.nsf/AttachmentsByTitle/MovingTowardCompetitiveness/$FILE/Value+Chain+Manual.pdf

Fischer, A., Petersen, L. & Huppert, W. 2004. Natural Resources and Governance: Incentives for Sustainable Resource Use – Manual. Edited by: GTZ.
Available online at: www.gtz.de/de/dokumente/en-governance-nat-resources.pdf

Fujisaka, S., Douthwaite, B., Hermann, M., Jarvisa, A., Cock, J., Gonzalez, A. & Hoeschle-Zeledon, I. [2006]. Determining CGIAR priorities to improve benefits to the poor from under-utilized plant genetic resources. A study funded by the Systemwide Genetic Resources Programme (SGRP). Available at GFU, Rome, Italy. Unpublished.

Gereffi, G., Humphrey, J. & Sturgeon, T. 2005. The governance of global value chains. *Review of International Political Economy*, 12(1): 78–104.

GFAR [Global Forum on Agricultural Research]. 2005. Synthesis Report – International Workshop on: How can the poor benefit from the growing markets for high value agricultural products? Cali, Colombia, 3–5 October 2005. Available online at:
www.fao.org/docs/eims/upload/214924/HVAP%20workshop-Synthesis%20report-Oct05.pdf

GFU [Global Facilitation Unit for Underutilized Species]. No date. Underutilized Plants – Achieving the Millennium Development Goals. Available online at: www.underutilized-species.org/Documents/PUBLICATIONS/gfu_poster_07_achieving_the_mdgs.pdf

Gibson, A. 2005. Bringing Knowledge to Vegetable Farmers: Improving embedded information in the distribution system. The Springfield Centre, and Katalyst Bangladesh. Available online at: www.springfieldcentre.com/publications/sp0502.pdf

Giuliani, A. 2007. Developing markets for agrobiodiversity – securing livelihoods in dryland areas. Bioversity International, Rome, Italy, and Earthscan, UK. Details at: www.bioversityinternational.org/Publications/pubfile.asp?ID_PUB=1072

Giuliani, A. & Padulosi, S. 2004. Linking rural communities' livelihoods with markets of underutilized species: Case study in Syria. Proc. XVth International Symposium on Horticultural Economics and Management. *Acta Horticulturae 655*. Available online at: www.actahort.org/books/655/655_37.htm

Giuliani, A., Karagöz, A. & Zencirci, N. Unpublished. Marketing Underutilized Crops: Livelihoods and Markets of 'Emmer (*Triticum dicoccon*)' in Turkey.

Grimm, M. & Guenther, I. 2004. How to achieve pro-poor growth in a poor economy: The case of Burkina Faso. Operationalizing Pro-Poor Growth. Department of Economics, University of Goettingen, Germany. Available online at: www.diw.de/documents/dokumentenarchiv/17/41790/ppg_burkina_summary.pdf

Gruere, G., Nagarajan, L. & King, E.D.I.O. 2007. Marketing underutilized plant species for the poor: A case study of minor millets in Kolli Hills, Tamil Nadu, India. Study commissioned by GFU, Rome, Italy. Available online at: www.underutilized-species.org/record_details.asp?id=956

GTZ [German Technical Assistance]. 2006a. Poverty Reduction: Biodiversity and Poverty. GTZ Sector Project "People and Biodiversity in Rural Areas" (Unit 45). *Issue Papers Biodiv*. Available online at: www.gtz.de/de/dokumente/en-biodiv-issue-poverty-reduction-2006.pdf

GTZ. 2006b. Policy Instruments for Resource Efficiency: Towards Sustainable Consumption and Production. GTZ, Eschborn, Germany. Available online at: www.scp-centre.org/uploads/media/GTZ-CSCP-PolicyInstrumentsResourceEfficiency_01.pdf

Guendel, S., Hoeschle-Zeledon, I., Krause, B. & Probst, K. 2003. Underutilized Plant Species and Poverty Alleviation. International Workshop, 6–8 May 2003, organized by Capacity Building International Germany (InWent) and the Global Facilitation Unit for Underutilized Species (GFU). Available online at: www.underutilized-species.org/record_details.asp?id=182

Halliday, J. 2007. Commodity-avoidance is a driver for ingredients research. On Foodnavigator.com Europe, 27/08/2007. Available online at: www.foodnavigator.com/news/ng.asp?n=79247-danisco-novozymes-commodities-r-d

Hartog, A.P. den, van Staveren, W.N. & Brouwer, I.D. (editors). 2006. Food habits and consumption in developing countries – Manual for field studies. Wageningen Academic Publishers, The Netherlands. Available online at: www.wageningenacademic.com/Default.asp?pageid=8&docid=16&artdetail=Foodhabits&webgroupfilter=2&

Hazell, P., Poulton, C., Wiggins, S. & Dorward, A. 2007. The future of small farms for poverty reduction and growth. International Food Policy Research Institute, Washington DC, USA. *2020 Discussion Paper* No. 42. Available online at: www.ifpri.org/2020/dp/vp42.pdf

Hermann, M. & Bernet, T. Unpublished. The transition of maca from neglect to market prominence: Lessons for improving use strategies and market chains of minor crops. Mimeograph, 66 p. Study commissioned by GFU, Rome, Italy.

Herzberg, B. & Wright, A. 2006. The Public-Private Dialogue Handbook: A Toolkit for Business Environment Reformers. The World Bank, Small and Medium Enterprise Department.
Available online at: www.publicprivatedialogue.org/tools/PPDhandbook.pdf Horna, D., Timpo, S. & Gruere, G. 2007. Marketing Underutilized Crops: The Case of the African Garden Egg (*Solanum aethiopicum*) in Ghana.
Available online at: www.underutilized-species.org/record_details.asp?id=958

Humphrey, J. & Oetero, A. 2000. Strategies for diversification and adding value to food exports: a value chain perspective Paper presented at the UNCTAD conference on trade and development. UNCTAD, Geneva, Switzerland. UNCTAD/DITC/COM/TM/1, UNCTAD/ITEM/MISC.23. 14 November 2000ILO [International Labour Organization]. 2006. A Guide for Value Chain Analysis and Upgrading. ILO, Geneva, Switzerland. Available online at: www.value-chains.org/dyn/bds/docs/detail/545/6

ILO [International Labour Organization]. 2006. A guide for value chain analysis and upgrading. ILO, Geneva, Switzerland.
Available online at: www.value-chains.org/dyn/bds/docs/detail/545/6

IPGRI [International Plant Genetic Resources Institute]. 2003. Conservation and use of native tropical fruit species biodiversity in Asia. IPGRI, Rome, Italy.

Irungu, C. 2007. Analysis of markets for African leafy vegetables within Nairobi and its environs and implications for on-farm conservation of biodiversity. Study commissioned by GFU, Rome, Italy. Available online at: www.underutilized-species.org/Documents/PUBLICATIONS/african_leafy_vegetables.pdf

Jaenicke, H. & Höschle-Zeledon, I. (editors). 2006. strategic framework for underutilized plant species research and development, with special reference to Asia and the Pacific, and to Sub-Saharan Africa. International Centre for Underutilised Crops, Colombo, Sri Lanka, and GFU, Rome, Italy. 33 p. Available online at: www.underutilized-species.org/documents/PUBLICATIONS/gfu_icuc_strategic_framework.pdf

Kaplinsky, R. & Morris, M. 2000. A Handbook for Value Chain Research. IDRC, Ottawa, Canada. 113 p.
Available online at: www.globalvaluechains.org/docs/VchNov01.pdf

KIT [Royal Tropical Institute]/Faida MaLi/IIRR [International Institute of Rural Reconstruction]. 2006. Chain empowerment – Supporting African Farmers to Develop Markets. KIT/Faida MaLi/IIRR. Available online at: http://smartsite.kit.nl/smartsite.shtml?id=SINGLEPUBLICATION&ItemID=1952&ch=FAB

Kuhndt, M. and 17 others. 2006. Policy Instruments for Resource Efficiency: Towards Sustainable Consumption and Production. GTZ, Eschborn, Germany. Available online at:
www.scp-centre.org/uploads/media/GTZ-CSCP-PolicyInstrumentsResourceEfficiency_01.pdf

Kruijssen, F. & Mysore, S. Unpublished. Markets for Agrobiodiversity: Exploring the utilization of *Garcinia* species in South India. In preparation for publication on the GFU Web site.

M4P [Making Markets Work for the Poor] (editor). No date. Making Value Chains Work Better for the Poor: A Toolbook for Practitioners of Value Chain Analysis. 0M4P. Available online at: www.markets4poor.org/

M4P (editor). 2004. Promoting Market Opportunities at the Base of the Pyramid (BOP). M4P.
Available online at: www.markets4poor.org/

Marshall, E., Schreckenberg, K. & Newton, A.C. (editors). 2006. Commercialization of non-timber forest products: Factors influencing Success – Lessons learnt from Mexico and Bolivia and policy implications for decision-makers. UNEP World Conservation Monitoring Centre, Cambridge, UK.
Available online at: http://quin.unep-wcmc.org/forest/ntfp/outputs.cfm

Meyer-Stamer, J. & Schoen, C. 2005. Rapid Appraisal of Local Innovation Systems (RALIS): Assessing and Enhancing Innovation Networks; Mesopartner.
Available online at: www.meso-partner.de/publications/mp-wp2_RALIS.pdf

Miehlbradt, A.O. & MacVay, M. 2003. Seminar Reader – Developing Commercial Markets for Business Development Services – BDS Primer. Small Enterprise Development Programme of ILO.
Available online at: www.bdsknowledge.org/dyn/bds/docs/BDSPrimer2003E.pdf

Miehlbradt, A.O. & McVay, M. 2006. Implementing Sustainable Private Sector Development: Striving for Tangible Results for the Poor. The 2006 Reader. ILO, Geneva, Switzerland.
Available online at: www.bdsknowledge.org/dyn/bds/docs/497/PSDReader2006.pdf

Myers, N. 1983. A wealth of wild species: Storehouse for human welfare. Westview Press, Boulder, CO, USA.

Nelson, J. 2007. Building linkages for competitive and responsible entrepreneurship: Innovative partnerships to foster small enterprise, promote economic growth and reduce poverty in developing countries. United Nations Industrial Development Organization (UNIDO) and the Fellows of Harvard College.
Available online at: www.unido.org/file-storage/download/?file_id=68649

Neuchatel Initiative. No date. Review of experiences in market oriented agricultural advisory services – a discussion paper. Draft. available online at:
www.neuchatelinitiative.net/english/documents/MOAASreportdraftforVienna.doc

Nill, D. & Boehnert, E. 2006. Value chains for the conservation of biological diversity for food and agriculture – Potatoes in the Andes, Ethiopian coffee, Argan oil from Morocco and Grasscutters in West Africa. GTZ, Eschborn, Germany. Available online at:
www.underutilized-species.org/Documents/PUBLICATIONS/english-report_060623.pdf

OECD [Organisation for Economic Co-operation and Development]. 2001. The DAC Guidelines – Poverty Reduction. Available online at: www.oecd.org/dataoecd/47/14/2672735.pdf

OECD. 2006. Promoting Pro-Poor Growth – Agriculture. OECD, Paris, France. Available online at:
www.donorplatform.org/component/option,com_docman/task,doc_details/gid,375/Itemid,98/

Padulosi, S., Eyzaquirre, P. & Hodgkin, T. 1999. Challenges and strategies in promoting conservation and use of neglected and underutilized crop species. *In:* J. Janick (editor). *Perspectives on new crops and new uses*. ASHS Press, Alexandria, Virginia, USA.

Padulosi, S., Hodgkin, T., Williams, J.T. & Haq, N. 2002. Underutilized crops: trends, challenges and opportunities in the 21st Century. pp. 323–338, *In:* J.M.M. Engels *et al.* (editors). *Managing plant genetic resources*. CABI-IPGRI. Available online at: www.ipgri.cgiar.org/nus/docs/sat21.doc

Padulosi, S., Hoeschle-Zeledon, I. & Bordoni, P. 2007. Minor crops and underutilized species: Lessons and prospects. pp. 605–625, *in:* N. Maxted, E. Dulloo, B.V. Ford-Lloyd, J. Iriondo, S.P. Kell, and J. Turok (editors). *Crop wild relative conservation and use*. CAB International, Wallingford, UK.

Pant, A.A. 2006. Assessing Competitiveness of Orthodox Tea Sub Sector. GTZ - PSP/RUFIN Nepal.
Available online at: www.pspnepal.org/psp/aboutus.php >> Information Centre >> Publication & Report >> Tea Report

Prescott-Allen R. & Prescott-Allen, C. 1990. How many plants feed the world. *Conservation Biology* 4(4).

Probst, K. & Hoeschle-Zeledon, I. No date. The EU Novel Foods Regulation – its impact on trade in biodiversity products from developing countries. GTZ Sector Project "People and Biodiversity in Rural Areas" (Unit 45). *Issue Papers People and Biodiv*.
Available online at: www.gtz.de/de/dokumente/en-agrobiodiv-eu-novel-food-2005.pdf

Robbins, P., Bikande, F., Ferris, S., Hodges, R., Kleih, U., Okoboi G. & Wandschneider, T. 2004. Advice Manual for the Organization of Collective Marketing Activities by Small-Scale Farmers. Natural Resources Institute, Chatham, UK. Available online at: www.nri.org/work/farmergroupnov04.pdf

Rogers, E.M. 1962 and 2003. *Diffusion of Innovations*. 1st and 5th Editions, The Free Press, New York, USA.

Scheuermeier, U., Katz, E. & Heiland, S. 2004. Finding new things and ways that work – A manual for introducing Participatory Innovation Development. LBL, Swiss Center for Agricultural Extension, Lindau, Switzerland. Available online at: www.prolinnova.net/Downloadable_files/Agridea%20part_I.pdf

Schulenburg, F. 2006. Promoting Business Linkages – Overview and Tools. GTZ, Eschborn, Germany. Available online at: www2.gtz.de/wbf/doc/SV_PSD_Promoting_Business_Linkages_0606.pdf

Schwanitz, S., Will, M. , & Müller, R. 2002. Competitiveness of Economic Sectors in EU Association and Accession Countries. Volume 1: Cluster-Oriented Assistance Strategies – Study; Volume 2: Cluster-Oriented Assistance Strategies – Guidelines. GTZ, Universum Verlagsanstalt, Wiesbaden, Germany. Available online at: www2.gtz.de/wbf/library/detail.asp?number=1707

SEEP Network. 2006. Value Chain Development and the Poor. Progress Note No. 16, October 2006. A publication of The Value Chain and Poor Working Group.
Available online at: www.seepnetwork.org/content/library/detail/4695

Shepherd, A.W. 2005. Associations of market traders: Their roles and potential for further development. FAO, Rome, Italy. Available online at: www.fao.org/ag/agS/subjects/en/agmarket/assocs.pdf

Shepherd, A.W. 2007. Approaches to linking producers to markets – A review of experiences to date. FAO, Rome, Italy. Available online at: www.fao.org/ag/ags/subjects/en/agmarket/linkages/agsf13.pdf

Springer-Heinze, A (editor). 2007. ValueLinks Manual – The Methodology of Value Chain Promotion; Module 9: Introducing Social, Ecological and Product Quality Standards. GTZ, Eschborn, Germany. Available online at: www.value-links.de/manual/index.html

Ton, G., Bijmanand, J. & Orthuizen, J. 2007. Producer Organizations and Market Chains: Facilitating trajectories of change in developing countries. Wageningen Academic Publishers, The Netherlands. Available online at: www.wageningenacademic.com/pomc

Tropical Products Institute. 2006. Chain empowerment – Supporting African farmers to develop markets. Available online at: http://smartsite.kit.nl/smartsite.shtml?id=SINGLEPUBLICATION&ItemID=1952&ch=FAB

USAID [United States Agency for International Development]. 2005. USAID Value Chain Training. USAID, Washington DC, USA.
Available online at: www.microlinks.org/ev_en.php?ID=13709_201&ID2=DO_TOPIC

USAID-microLINKS. No date. USAID-microLINKS: Value Chain Governance.
Available online at: www.microlinks.org/ev_en.php?ID=9893_201&ID2=DO_TOPIC

Will, M. [2006a]. Promotion of Private Sector Development in Agriculture, Kenya – Mission Report 19 February to 11 March 2006. Study commissioned by GTZ. Unpublished internal report.

Will, M. [2006b]. Report on the Mango Value Chain Stakeholder Workshop, Nairobi/Thika, 6–8 March 2006. Promotion of Private Sector Development in Agriculture (PSDA), GTZ, Nairobi, Kenya. Unpublished internal report.

Will, M. [2007]. Participatory value chain development – training course for value chain facilitators; 25–29 March 2007. Promotion of Private Sector Development in Agriculture (PSDA). GTZ, Nakuru, Kenya. Unpublished internal report.

Will, M. & Guenther, D. 2007. Food Quality and Safety Standards as required by EU Law and the Private Industry – With special reference to the MEDA countries' exports of fresh and processed fruit & vegetables, herbs & spices – A Practitioners' Reference Book. 2nd revised and up-dated edition. GTZ, Eschborn, Germany. CD-ROM. Available online at: www2.gtz.de/dokumente/bib/07-0800.pdf

Wilson, E.O. 1992. The Diversity of Life. Allen Lane/The Penguin Press, Washington DC, USA.

Winkler, G. 2004. Promoting Trade Associations in South Eastern Europe – Challenges and experiences. GTZ, Eschborn, Germany. Available online at: www2.gtz.de/dokumente/bib/05-0076.pdf

Margret Will,
MBA in foreign trade and
MSc in horticultural economy
is a freelance consultant specialised
in value chain development,
agricultural marketing
and food safety.
margret.will@gmx.net

Global
Facilitation
Unit
for Underutilized
Species

For further information, contact:

GFU for Underutilized Species
Via dei Tre Denari, 472/a
00057 Maccarese, Rome, Italy
Tel: +39-06-6118-292 / 302
e-mail: underutilized-species@cgiar.org
website: www.underutilized-species.org

GFAR

GFU is a Global Partnership Programme under the umbrella of GFAR