

Working Area

SUSTAINABLE AGRICULTURE

1. Introduction and Terminology



Sustainable
Agriculture

CHANGING COURSE IS CRITICAL – “BUSINESS AS USUAL” is no longer an option. (FAO 2018) Today, there is growing consensus that agriculture systems must be fundamentally transformed and become more sustainable in order to provide nutritious food for all, improve livelihoods and resilience of farmers, while at the same time minimizing negative impacts on the environment and climate and progressively improving ecosystems and soil quality. Approaches and practices to address the dilemma of how to produce more while maintaining natural resources and ecosystems and make agriculture¹ more environmentally sustainable are manifold, i.e. agroecology, climate smart agriculture, conservation agriculture, urban agriculture, etc. These different agricultural "schools" have specific characteristics, but all are in line with the principles of sustainable development and largely based on the principles of agroecology¹. Swisscontact refers to the broad term of sustainable agriculture to consider the diversity of agriculture initiatives developed in our different regions. The term highlights the balancing of the economic, environmental, and social dimensions of the agricultural systems and emphasises the maintenance of agricultural production systems over time. Swisscontact's understanding of sustainable agriculture is based on the key principles of the Food and Agriculture Organisation (FAO).

FAO's
5 principles
of Sustainable
Agriculture

- Improving efficiency in the use of resources is key to sustainable agriculture
- Sustainability requires direct action to conserve, protect and enhance natural resources
- Improving livelihoods and social well-being while fostering inclusive economic growth
- Enhancing the resilience of people, communities, and ecosystems, especially to climate change and market volatility
- Good governance is essential for the sustainability of both the natural and human systems

2. Current Trends and the position of Swisscontact

Today, agriculture and food systems are affected by various fast developing trends that could threaten their future sustainability. At the same time agriculture offers opportunities to create multiple benefits for people, and food security.

[Read more](#)

3. How do Swisscontact projects address Sustainable Agriculture?

In view of the broad range of development challenges related to agriculture and rural livelihoods, Swisscontact's interventions in the sector are manifold. In the following, a general common framework is outlined, which applies to all Swisscontact projects working in the field of agriculture.

3.1 Goal

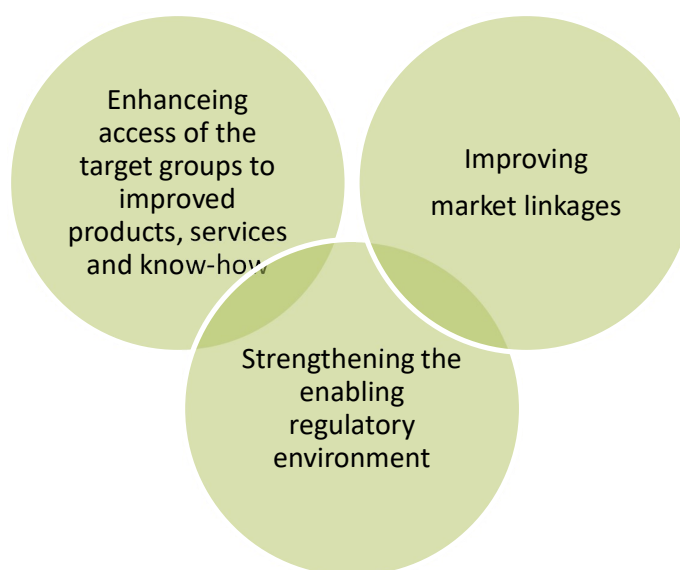
Swisscontact aims to empower male and female farmers, within their socio-cultural and territorial context, to sustainably generate additional income and to be equipped for and capable of responding to dynamically changing climate and market conditions. At the same time, we seek to contribute to transforming the agriculture sector towards more sustainability, by building capacities of relevant system actors and developing inclusive, resource efficient and resilient agricultural systems, which strengthen natural processes and ecosystems.

In that sense we aim to contribute to strengthen the multiple dimensions of sustainability in agricultural systems (Table 1) and seek to find innovative solutions which build on synergies between different dimensions and/or reduce trade-offs.

Economic dimension: strengthening farmers' livelihoods	Environmental dimension: increasing environmental health, climate change mitigation and adaptation	Social dimension: increasing social well-being of male and female farmers
• Increased and more stable income • Increased profitability by reducing costs • Reduced risks by diversifying income sources • Enhanced economic autonomy • Access to support services • Provide decent work, (self-) employment and a recognised "profession" • Enhance farmers financial and entrepreneurial capabilities	• Enhance sustainable and efficient use of resources • Minimize any form of pollution • Develop circular economies (reuse of resources and materials) and reduction of waste • Maintain/enhance biodiversity • Maintain multiple functions of ecosystems and landscapes • Reduce GHG emissions and enhance of carbon sinks. • Ensure that people are equipped for/ capable of adapting to climate change.	• Increase inclusiveness and equality of access to productive resources • Increase power and voice (agency) of the most vulnerable and the capacity to (self-) organise • Increase livelihood choices • Empower farmers to build autonomy and adaptive capacity • Maintain cultural heritage • Increase social recognition and self-confidence (e.g. through recognised capacities) • Foster co-creation and sharing of knowledge

3.2 Strategy

Swisscontact applies an Inclusive System Development (ISD) approach in all agriculture projects. Rather than addressing a problem or constraint of the target group directly, Swisscontact aims to understand and draw on the underlying causes by thoroughly analysing the overall market system, including the economic, socio-political and environmental context at local, regional and national levels. From the very beginning Swisscontact considers gender equality and social inclusion (GESI), conflict sensitivity and environmental responsibility to identify critical issues and at a minimum ensure "do no harm" in interventions. The analysis includes the assessment of the core value chain, support functions and the overall regulatory framework conditions. Constraints for the target group normally originate in missing/low quality support functions and lacking/unfavourable regulatory conditions. To address these bottlenecks and unlocking opportunities at the system level, Swisscontact works in three main "activity areas" (see also Theory of Change, Chapter 3.4).



a) **Enhancing access of the target groups to improved products, services, and know-how** and increases ability to make use of them. To sustainably increase productivity/production and build ownership of the relevant system actors, Swisscontact assumes the role of a facilitator and capacity builder working through motivated partners. By understanding and building on incentive structures of partners Swisscontact ‘nudges’ the relevant system actors towards embracing change and delivering improved and more inclusive products and services. Swisscontact helps private partners to understand that inclusive business models, which are well-designed to serve the bottom of the pyramid (BOP), are commercially viable and profitable as they can tap into new market segments.

b) **Improving market linkages** by facilitating collaboration and networks amongst relevant system actors, fostering entrepreneurial skills of farmers, organisations, and enterprises as well as building capacities of local public and private partners enabling them to deliver improved support services such as dissemination of market information, financial services etc. Swisscontact projects put a strong focus on access to sales markets form the beginning so that improvements at the production level can eventually translate into increased sales and income for farmers.

c) **Strengthening the enabling regulatory environment** and thus improves the performance and inclusiveness of the overall market system. Swisscontact supports the development and implementation of rules and regulations which foster inclusiveness and sustainability in agriculture at the system level in the long-term, for example: strengthening legal and institutional frameworks and policies, financing mechanisms, intergovernmental cooperation, institutionalized cooperation between the public and the private sector, use of research, setting standards for sustainable agricultural production, etc.

Projects follow a bottom-up approach, usually starting locally with a selected pilot, before working on scaling up and creating a sustainable, systemic impact. Systemic change is crucial to ensure long-term sustainability of the solution as well as to increase outreach by offering better conditions for more actors to adopt the solutions, for additional innovations and crowding-in of other actors, and ultimately to stimulate positive response from other non-competing market actors.¹

In order to smoothly react on experiences and learnings from the pilot we apply an adaptive management approach.

¹ See AAER framework in ISD Guidelines



Target Groups

Given the wide range of agriculture projects Swisscontact reaches a variety of different actors benefitting from interventions including farmers, micro small and medium sized entrepreneurs as well as growth and trade-oriented entrepreneurs (agribusinesses). Identification of the target groups often depend on the framing of the project and on donors' preferences. However, the vast majority of Swisscontact projects address male and female farmers as their target clients who ultimately benefit from interventions. To reach these farmers, enhance their knowledge and capacities and increase their access to relevant quality products and services, Swisscontact works through private and public partners, who often benefit from interventions as well. In vocational training projects, Swisscontact particularly focuses on youth and social inclusion of minorities.



Partners

SC delivers projects by building capacities and fostering collaboration of service providers and other relevant private and public system actors, which in many cases also directly benefit from project interventions.

- Private sector partners include, producer organisations, input and service providers, traders, processors as well as providers of support services such as business development services, financial services, etc.
- Public sector partners include relevant government entities and public institutions at different levels. Collaboration with public partners are mainly directed at facilitating the development of a conducive regulatory environment.

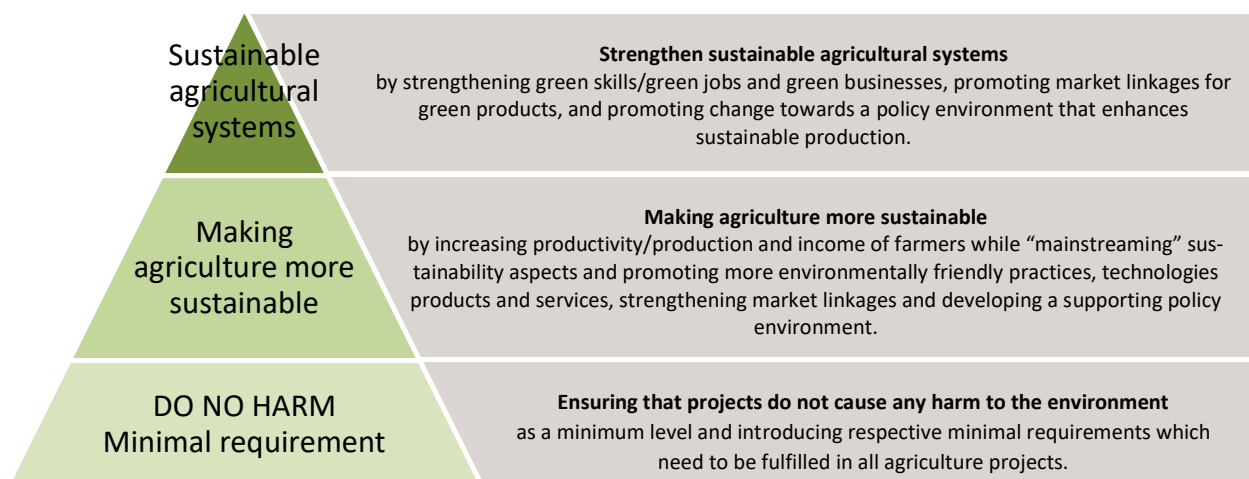
Universities can play an important role as knowledge partners on one hand and on the other is a key partner to ensure knowledge and capacity development in the long-term by including relevant aspects into the curricula of local universities. R&D, carried out by Universities or private companies, is a major driver for innovations e.g. in breeding crops that are more resistant to climate risks, providing new technologies for precision agriculture etc.

To ensure sustainable practices beyond project duration, it is crucial to

- A) identify and select partners applying good environmental practices and/or willing and able to improve their practices and
- B) identify and strengthen incentives for partners to apply good environmental practices in the long term.

3.3 Approach to enhancing sustainability in agriculture

Swisscontact applies a three-level approach to enhancing (environmental) sustainability in agriculture – offering a broad framework which is applicable to all Swisscontact's agriculture projects and builds on our varied experiences – aiming at:





Ensuring do-no-harm is a “must” in all projects

Agricultural systems are inevitably based on and interlinked with the natural and socio-cultural systems within a given context. Do-no-harm requirements are thus to be adapted to local contexts. However, some generic minimum requirements will be developed to be applied in all Swisscontact projects to ensure that we do not create *additional* harm through our interventions and that negative impacts on the environment are minimized/mitigated. They are based on the premise that we assess potential environmental impacts, identify potential trade-offs of environmental measures with poverty alleviation targets and make informed and transparent decisions.



Making agriculture more sustainable

There is a wide range of possible measures to introduce incremental changes towards more sustainability and reduce negative effects of agricultural production systems on the environment.

Firstly², the use of chemical inputs can be optimised so that fewer inputs will be needed per unit produced. Respective practices are e.g. improved seeds, optimum planting density, more efficient pesticide and fertilizer application, good feeding practices for aquaculture/livestock, and more precise use of water (*see Overview in Chapter 3.4, Intervention Area 1 – Improve productivity, efficiency and sustainability of production*).

Secondly³, external input-intensive and environmentally degrading products and practices can be replaced with those that are more environmentally friendly such as nitrogen-fixing cover-crops, use of organic plant nutrition, perennial crops, soil organic matter management, natural pest control practices, and diversification of crops in crop rotation/intercropping to support biological processes which increase nutrient recycling and natural regulation to improve productivity and resistance to pests and diseases; improved animal feeds, good livestock husbandry and fish farming practices to prevent diseases (*see Overview in Chapter 3.4, Intervention Area 2: Substituting conventional inputs with more sustainable alternatives*).



Strengthening sustainable agricultural systems

As opposed to making incremental changes in agricultural production, as described above, this aspect is about fundamental changes in the overall design of agro-ecosystems *at farm or landscape level* such as for example the reintroduction of diversity in farm structure and management through ecologically-based crop rotations, multiple cropping, agroforestry and the integration of animals with crops⁴. By enhancing natural processes and functions such as recycling of nutrients and natural resources and using synergies between species, productivity can be increased, and the capacity of ecosystems to recover from disturbances and thus ecological and socio-economic resilience is strengthened. (*see Overview in Chapter 3.4, Intervention Area 3 – Improve productivity, efficiency, sustainability, and resilience of agroecological farming systems*)

Implications on Swisscontact’s “activity areas”:

Sustainable products, services, and know-how

To promote more environmentally friendly and climate-smart products, services, and know-how SC usually identifies and builds on incentives for partners (providers of inputs, technologies, extension) by

- Identifying clear cut business cases (e.g. organic fertilizer, draught resistant seeds, efficient irrigation technology, improved animal feed etc.)
- Promoting the integration of environmental and climate-smart aspects into partners’ products and services highlighting the benefits for the clients (and the environment) which, in turn, help to grow the business and reduce risks of partners.
- Integrating additional public or private partners (e.g. farmers’ organization or unions) with an interest in more sustainable solutions who are able to deliver relevant additional service, usually information on good environmental practices.

To strengthen sustainable agricultural systems (e.g. integrated agroforestry or agroecological production system) Swisscontact usually works through partners with a strong interest in sustainable agricultural systems e.g. farmers’ organizations, producers’ unions, communities, or institutions who can ensure sustainability in the long-term.

Market linkages

Environmentally friendly practices require specific knowledge and thus respective interventions may be required to foster collaboration of relevant system actors and to ensure dissemination of specific/additional knowledge and information. Also, promotion of tailored support services may be needed e.g. financial services, marketing of more sustainable and healthy products, post-harvest services (e.g. storage) and processing.

Enabling environment

The development of a conducive policy and regulatory environment, which incentivises more sustainable agricultural practices, is essential to foster the transition of agriculture and food systems in the long-term. Institutionalisation of sustainable and inclusive solutions, including collaboration with research & development

An *Overview of potential Intervention Areas* is provided in chapter 3.4.

² Referring to Gliessman’s level 1 of transformation in “Transforming food systems with agroecology” (2016),

³ Gliessman (2016) level 2 of transformation,

⁴ Gliessman (2016) Level 3 of transformation

3.4 Theory of Change

The generic Theory of Change is based on Swisscontact's Inclusive Systems Development (ISD) approach and describes three generic activity areas: A) improving access to sustainable products and services, B) creating and strengthening market linkages for sustainable products and C) strengthening the enabling environment. Swisscontact's agriculture projects usually intervene in all three areas in order to change the overall system in favour of the target group and ensure sustainable impact at scale. At all levels Swisscontact acts in the role of a facilitator working through private and public partners, building capacity of the relevant system actors, and fostering exchange and collaboration amongst all stakeholders.

Wider Impact Deeper Impact	Wider impact: Wider population benefits of improved environmental conditions (e.g. improved quality of water, air etc.) Deeper impact: Improved well-being, increased level of power and voice, reduced level of risk/increased resilience of target group		
IMPACT	Farmers sustainably generate additional income with positive impacts on the environment, gender equality and social inclusion.		
Sector growth and TARGET GROUP improves performance	Male and female farmers are empowered and increase their competitiveness, production, sales, turnover, investments and are better adapted to climate change.		
TARGET GROUP accesses and uses services	Male and female farmers access and use new/improved and more sustainable production inputs, services and know-how and apply more sustainable practices	Male and female farmers have improved access to new/improved sales market and market information for sustainably produced products	Male and female farmers make use of opportunities unlocked through improved rules and regulation being implemented
PARTNER offer improved products and services	Local public and private partners provide new/improved and more sustainable production inputs, services, and know-how	Local public and private partners provide new / improved support services to improve market access and entrepreneurship for sustainable production (systems)	Local private and public partners ensure and/or support formation, change and implementation of rules and regulations that support sustainable production (systems)
Activity areas	Sustainable Products, Services and Know-How	Market Linkages	Enabling environment

Based on the generic Theory of Change, the matrix below provides an overview of different intervention areas of Swisscontact which contribute to improving the performance of agricultural systems in terms of inclusiveness (increased income for farmers) and sustainability (positive impacts on the environment, gender, and social well-being). They are aligned with the overall strategy of ensuring do-no-harm, making conventional agriculture more sustainable and strengthening sustainable agricultural systems.

While the intervention areas give an overview on what Swisscontact does in the working area of sustainable agriculture, the way how we work is outlined through "basic criteria" which refer to the different dimensions of sustainability (see chapter 3.2) and need to be taken into account in Swisscontact projects.

Overview of proposed intervention areas

Sustainable products, services and know-how	Market linkages	Enabling environment
Criteria (How we work)		
➤ Increase productivity and net income ➤ Reduce negative impact on environment and climate change ➤ Reduce risks and improve climate change adaptation ➤ Ensure inclusiveness and equality of access and agency ➤ Maintain or improve access to nutritious food ➤ Consider socio-cultural preferences, as well as gendered needs, interests and motivations	➤ Do not create dependencies on specific actors and strengthen self-reliance of farmers ➤ Increase inclusiveness and equality in value chains (how does, who pays) e.g. equal access to relevant services such as market information, equal access to entrepreneurial trainings/services etc. and ability to use them	➤ Ensure inclusiveness and long-term sustainability of policy measures and regulations ➤ Increase power / voice (agency) of the most vulnerable ➤ Increase capacities to (self-)organise
Minimal requirements do-no-harm <i>To be developed</i>		
Making conventional agriculture more sustainable Intervention Area 1 – Improve productivity, efficiency and sustainability of value chains • Access to quality (sustainable) inputs and efficiency of input use • Access to water and efficiency of water use • Access to technologies which increase efficiency and sustainability • Access to knowledge on sustainable production and post-harvest practices Intervention Area 2 – Substitute conventional inputs and practices with more sustainable alternatives • Access to alternative inputs which reduce environmental impacts e.g. organic nutrition inputs, perennial crops, cover crops • Access to technologies which substitute for pesticide use during production and post-harvest (e.g. storage facilities and practices)	Intervention area 4 – Facilitate market linkages which foster the commercialization of sustainable products/services • Commercialization of sustainable products / practices • Commercialization of “product packages” from sustainable cropping patterns • Standards • Post-harvest, storage and processing • Diversification of markets • Access to formal and informal financial products and services • Payment services for ecosystem services Intervention area 5 – Strengthen co-creation and sharing of information and knowledge • Promote collaboration and co-creation of relevant information and knowledge amongst system actors • Access to market information	Intervention area 8 – Promote policy measures that incentivise sustainable agriculture • Incentives for conversion to sustainable agriculture (technology, inputs, know-how etc.) • Incentives for increased resource efficiency • Incentives for conservation of natural resources and ecosystems Intervention area 5 – Strengthen regional value generation in value chains and/or on sector level • Promote regional value generation e.g. through post-harvest activities, processing, packaging of sustainable products • Incentives for extending seasonal production to annual production Intervention area 9 – Promote policy measures that incentivise decent job creation for rural youth in agriculture • Policies and incentives making rural areas more attractive for youth and creating jobs based on agriculture, promoting entrepreneurship and access to productive resources, deconstructing negative image of agriculture towards recognition of farming as a profession

• Access to knowledge on alternative and sustainable production and post-harvest practices Strengthening sustainable agricultural systems <i>Intervention Area 3 – Improve productivity, efficiency, sustainability, and resilience of whole farming systems</i> Access to respective knowledge, trainings, products, technology and services needed to: • Diversify crops and income source • Ensure annual production • Establish integrated cropping systems and balanced crop rotations • Establish integrated farming systems (e.g. crop-live-stock) • Introduce agroforestry on farm level • Reduce risks (in particular Climate Change Risks) • Develop circular economy systems at farm level	• Promote or strengthen beneficial digital solutions • Promote responsible consumption • Promote transparency in value chains <i>Intervention area 6 – Strengthen entrepreneurial skills of farmers, enterprises and organisations</i> • Access to training, know-how and information to improve entrepreneurial and marketing skills and financial capabilities of male and female farmers (in particular youth) enterprises and organisations	<i>Intervention area 10 – Promote transparent and efficient governance models</i> • New transparent governance models that foster inclusive and equal participation and ownership <i>Intervention Area 11 – Improve productivity, efficiency, sustainability and resilience of agro-ecosystems at landscape level</i> • Watershed management • Agroforestry on landscape level • Landscape management for soil conservation (e.g. terraces, other infrastructure to prevent soil erosion, shifting cultivations) <i>Intervention Area 12 – Increase knowledge of system actors by collaborating with Universities and Research Institutes</i> • Research for development (R4D) • Upgrading curricula
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3.5 Indicators to measure impact

The generic set of indicators presented in the table below, provides some examples of potential indicators at all levels. These indicators are to be complemented/adapted to project's context and needs.

Wider and Deeper Impact	Deeper impact for the target group: - Male and female farmers report on increased well-being (health, education, ...); - Farmers (m/f) report on increased level of power and voice, and (self-)organisation; - Farmers (m/f) report on reduced risk level / increased resilience Wider impact for the population: - Population in project area benefits from environmental impacts (e.g. improved water quality, air quality, etc.)		
Impact	Farmers (m/f) impacts: # of male and female farmers increasing annual net income (through sustainable agriculture) - Increase in annual net income in CHF/year % share of income increase through sustainable vs. conventionally produced agricultural products Environmental Impacts: - Improved soil and water quality - Area with increased biodiversity - Reduced GHG emissions (incl. agroforestry, carbon sinks through improved soil management practices) - Area with increased forest cover		
Performance of Target Group	Farmers (m/f) performance: - Reduction in use of harmful inputs per volume produced in t/input unit - Reduction in use of water per volume produced in t/l water % increase in productivity in t/ha for sustainably produced agricultural products - Increase in production of sustainably produced agricultural products in t/year - Increase farm gate price for sustainably produced agricultural products - Increase in annual sales of sustainably produced agricultural products in t/year % share of sustainably vs. conventionally produced and sold agricultural products - Increase of area with improved soil management (biodiversity, carbon sinks, re-forestation) - Reduction of waste (t) or increased use of organic and/or non-organic material		
Target Group access improved services	# of male and female farmers accessing and apply new/improved and more sustainable products and services (inputs, know how, financial and other support services) - Farmers (f/m) satisfaction and capacity/willingness to continue using more sustainable services, products and practices (e.g. re-purchasing rate)	# of farmers (m/f), MSMEs, organisations accessing and applying entrepreneurship support and/or support services to access national / international markets for sustainable products - Farmers (f/m) satisfaction with entrepreneurship and market access support (quality)	# of farmers (m/f) making use of opportunities unlocked by new rules and regulations
Partners deliver relevant services	# of local public and private partners offering more sustainable products and services # of partners offering know-how on sustainable farm management - Partners satisfaction (profitability) and willingness to continue offering products, services, know-how	# of local public/private partners offering entrepreneurship support and/or support services to access national / international markets for sustainable products - Partners satisfaction and willingness to continue offering entrepreneurship support and/or market access services	Regulatory environment and Eco-system strengthened in favour of sustainable agricultural production (systems)
Activity Areas	Sustainable products, services and know-how	Market linkages	Enabling environment

3.6 Application of Sustainability Criteria

The most relevant aspects on the Sustainability Criteria are integrated into the overall approach as described above. For more detailed information, please refer to the respective policies and implementation guidelines. (insert links)

4. Interlinkages to other Working Areas

Given the varied contexts of Swisscontact agriculture projects, this working area is linked to several others in particular to Entrepreneurship Ecosystems, Trade as well as Initial VET (e.g. SIFAs) and upskilling and re-skilling. There may also be opportunities for interesting linkages with Tourism and Green Cities. However, the characteristics of these thematic interrelations yet need to be elaborated.

5. Partnerships

Strategic partnerships are of high importance to the Sustainable Agriculture working area, in particular partnerships with research institutions. Applying and further developing scientific evidence is key to ensuring quality as well as increasing access to knowledge for target beneficiaries.

Existing Partners

- CIRAD, Agricultural Research for Development (France)
- HAFL, Institute for Agriculture of the University of Applied Science of Berne (Switzerland)
- KSU, Kansas State University (USA)
- CIAT (International Center for Tropical Agriculture)

Potential Partners

- ETH World Food System Centre, ETH Zurich (Switzerland)
- CDE, Centre for Development and Environment, University of Berne (Switzerland)
- Wyss Academy for Nature, University of Berne (Switzerland)
- FiBL, Research Institute of Organic Agriculture (Switzerland)
- EAWAG, Swiss Federal Institute of Aquatic Science and Technology, ETH Zurich (Switzerland)
- Risk Lab, ETH Zurich (Switzerland), partnership on agriculture and livestock insurance curriculum development

6. Links to products which already exist

Proposed products in the working area of sustainable agriculture are: 1) FINCA, a cocoa agro-forestry system in Ecuador, 2) SIFA, agriculture training sites in Niger, 3) Plant Clinics in Mozambique

7. Resource/Literature links

- FAO (2018), The future of food and agriculture – Alternative pathways to 2050; <http://www.fao.org/3/CA1553EN/ca1553en.pdf>
- FAO (2017), The future of food and agriculture – Trends and challenges; <http://www.fao.org/3/a-i6583e.pdf>
- World Resource Institute (WRI), 2018; How to sustainably feed 10 billion people; <https://www.wri.org/blog/2018/12/how-sustainably-feed-10-billion-people-2050-21-charts>
- FAO (2017), Ending Poverty and Hunger by investing in Agriculture and Rural Areas; <http://www.fao.org/3/a-i7556e.pdf>