

Improving rural livelihoods through promoting high-quality coffee and coffee cherry products in the origin countries Colombia and Bolivia¹

Executive Summary

This interdisciplinary and international project explored the market- and livelihoods potential of high-quality coffee and coffee cherry products in two South American origin countries. Colombia, where high-quality coffee value chains are emerging, and Bolivia, where products made from dried coffee pulp have been traditionally consumed, while high-quality coffee production and marketing are still in their infancies.

The study identified the marketing of high-quality coffee as an alternative to improving the livelihoods of producers. New business models for farmers and other coffee professionals in the origin countries have emerged. Not only by exporting high-quality coffee, but also by selling it on the national market due to an increasing demand and a growing coffee culture in the larger cities. New contacts with buyers of coffee cherry products were established and concrete recommendations for the different actors in the value chain proposed. Our research also revealed a shift from organic agroforestry to chemical-intensive monocultures observed in Bolivia as farming families engaged in specialty coffee.

Sabine de Castelberg, Zurich University of Applied Sciences
Sergio Alejandro Urioste, independent consultant Bolivia
Alvaro Irazoque, independent consultant Bolivia
Derly Cibelly Lara Figueroa, Universidad Surcolombiana
Daniel Mauricio Castro Cabrera, Universidad Surcolombiana
Dr. Johanna Jacobi, University of Berne
Dr. Sebastian Opitz, Zurich University of Applied Sciences
Prof. Dr. Nelson Gutiérrez Guzmán, Universidad Surcolombiana
Prof. Dr. Stefan Rist, University of Berne
Prof. Dr. Chahan Yeretian, Zurich University of Applied Sciences

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Research plan

Coffee is one of the most important commodities traded globally. It provides a living to millions of farming families in the global South (Barrientos 2011; Álvarez and Furio 2010; MDRyT 2013). Yet, most coffee farmers receive only a small share of the final profits made from each cup of coffee. Greater profits are captured in the consuming countries, through roasting, marketing, and more (Makundi 2015, Donovan and Pole, 2014). Due to low farm-gate prices and high labour intensity, coffee production is no longer viable for many small farmers in Colombia and Bolivia. This trend puts rural livelihoods at risk and endangers the future of coffee production. Younger people, in particular, increasingly engage in off-farm activities and migrate to cities, for example to El Alto in Bolivia, where 35% of the population lives in poverty (FAO 2014, UNCTAD 2015, ICO 2016).

In this interdisciplinary and international project, we (the ICBT ZHAW Switzerland, the CDE University of Bern Switzerland, CESURCAFE USCO Universidad Surcolombiana Colombia and Slow Food Bolivia) studied the market- and livelihoods potential of high-quality coffee and coffee cherry products in two South American origin countries. Colombia, where high-quality coffee value chains are emerging, and Bolivia, where products made from dried coffee pulp (known as cascara or sultana) have been traditionally consumed, while high-quality coffee production and marketing are still in their infancies. In producing countries, specialty coffee² is typically exported and only the lower-quality coffee is marketed for domestic consumption (Ponte, 2002). However, local demand for high-quality coffee is growing and products made from dried coffee pulp are increasingly sought after (Marescotti and Belatti, 2016).

This report presents the findings of a two-year long research project funded by the Swiss Network for International Studies. We structured the research to answer three main questions:

1. **Value Chain and Livelihood outcomes:** What is the potential of high-quality coffee and coffee cherry value chains for smallholder' livelihoods in Bolivia and Colombia?
2. **Quality potential and associated knowledge:** What are the most important quality traits of coffee and coffee cherry products in smallholder production in Bolivia and Colombia, and how can these be achieved?
3. **Institutional and Policy needs:** What are concrete implementations and necessary policy reorientations at national and international levels for smallholder organizations to develop local markets for high-quality coffee and coffee cherry products?

Building on literature, investigating value chains and livelihoods in the Andes (Devaux et al. 2009), and in line with our three overarching topics, we have applied a combination of a value chain approach, a sustainable livelihoods framework and an institutional analysis and development (IAD) framework as it is often used in the analysis of social-ecological systems (Ostrom 2011; Villamayor-Tomas et al. 2015). Our research is based on case studies in Bolivia (Region of the Yungas) and Colombia (Huila Department). We mainly drew on best-practice examples and research by local experts. We studied the quality potential by examining post-harvest processes and how the process type (natural, semi-washed and washed) influences coffee quality and by studying the drying process of coffee and sultana by addressing health-promoting substances and factors that influence their content. We aimed to understand the fast growing opportunity of local to national markets and their impact on the development agenda. Moreover, we planned to identify - derived from actor's policy recommendations and best practice examples from Colombia and Bolivia - how improvements may be achieved and which institutions, policies and participatory action are needed and at which level.

Results obtained and Analysis of Results

1) Value Chain and Livelihood outcomes

² i.e. single origin, and rated at least 80 out of 100 points according to the SCA Specialty Coffee Association <https://sca.coffee/>

In our research, we explored two very different initial situations. Colombia on the one hand, where coffee has had a tradition for centuries, where organizations and markets are well established and institutionalized, a country that is internationally known for its high-quality coffees and therefore with relatively good market access for farmers. On the other hand, Bolivia, one of the poorest countries in South America, where despite increasing international recognition and highly sought-after coffees, production has been decreasing in the last five years (World Bank 2019, FAO 2018). However, especially in the cities, the awareness for high-quality coffee is growing and a new coffee culture is emerging in Bolivia. We identified in both countries a positive relationship between the involvements of farmer's in high-quality coffee value chains and the farmer's livelihoods. We found that direct sales of either green coffee for international clients or selling roasted coffee in the local market or their own coffee shop are the most beneficial value chain models.

We observe a much better farmer-buyer relationship in high-quality coffee value chains. Close long-term relationships pay off with better bargaining power of farmers, higher knowledge, better quality in processing steps due to sorting, grading and proper drying, and therefore receiving a much higher price. Even though, the farmers have a higher income when involved in high-quality coffee value chains, often there is not a holistic improvement of the overall household situation (housing, machinery, equipment, transportation). We observe a lack of knowledge in financial planning and bookkeeping in order to manage cost of production and to streamline revenues.

In Bolivia, whereas the standards of living are generally lower than in Colombia, farmer families still struggle with limited access to health, education, sanitary facilities and are very vulnerable to health related costs. Whereas in Colombia farmers producing specialty coffee moved to a contributory health system and were less vulnerable to health costs.

In Bolivia, we see a shift towards monoculture farming systems. In Colombia, where the cultivation is much more advanced, this transition is not visible anymore since most coffee farmers produce non-shade coffee.

2) Quality potential and associated knowledge

Sultana, storage and drying: In order to investigate the suitability as a healthy food, important health-promoting substances (flavonoids, chlorogenic acids, caffeine) were quantified in coffee pulp samples from Colombia and Bolivia with investigating the effect of drying conditions and storage.

During the storage of one year, we recognized a decrease of 30-50% in flavonoids and chlorogenic acids. It is therefore advisable to consume sultana as freshly as possible. Furthermore, we investigated the influence of temperature during drying. We investigated drying behavior of fresh coffee pulp under artificial drying conditions in an oven at 55°C and 65°C relative to natural sun-dried sultana. Referring to flavonoids, natural dried sultana contained higher amounts of these compounds, while the oven-dried samples contained significantly less. Referring to the chlorogenic acid content, a drying temperature of 65°C resulted in a reduction, but no reduction was seen at 55°. We therefore recommend consuming Sultana fresh and avoiding temperatures above 40°C when drying sultana.

Coffee, drying experiment in Bolivia: Coffee transported immediately to El Alto, La Paz (4000 MASL) for drying, exhibited a lower sugar content in the green beans than beans dried in the Yungas (1700 MASL), where beans dried faster (at lower altitude and higher humidity). It seems advisable to initially dry the coffee cherries as quickly as possible in the Yungas to a degree where the embryo stops its metabolic activity. In a second stage, slow and gentle drying is advisable, which is ideally achieved at a climate such as in El Alto. Likewise, from a sensory perspective (cupping), we recommend to dry coffee in the Yungas first and afterwards in El Alto, since these samples were performing with the most promising sensorial attributes.

Coffee, processing methods in Colombia: In Colombia we investigated wet, semi-washed and natural processing methods and the effect of drying on the chemical composition of two *C. arabica* varieties, Castillo and Caturra. Processing seems to have a greater influence on the chemical composition of the green bean, whereas the variety of the coffee is less clearly expressed. Semi-washed and natural processed coffee, which involve relatively long drying times, could not be clearly separated by process, but

by variety. We conclude that with a long processing time, the variety becomes more important, which results in different chemical compositions.

Our experiment by both targeted and untargeted chemical analysis showed that the processing leaves its chemical traces in the coffee beans and that we can predict some sensory properties already by analyzing the green bean. This applies, for example, to the higher acidity of the wet processed green beans, in particular for the Castillo variety, which is known for its pronounced acidity. However, drying of coffee at low altitudes with frequent rains remains a big challenge for the production of natural coffee. Natural processed coffee takes longest to dry and mold formation or excessive fermentation bears a high risk of ruining coffee quality. We make out that diversification of processes and the knowledge how to produce high-quality natural coffees could be an important new footstep towards a novel niche market for Colombian coffee farmers. Whereas in Bolivia, recommendations are directed towards a more basic approach for proper high-quality post-harvesting management.

3) Institutional and policy needs

The Colombian coffee market differs a lot from the Bolivian market and so does the implementation of their policies. Whereas the coffee policy in Colombia is very established, in Bolivia a coffee policy exists since 2018; although it has not been implemented.

Colombia: The Colombian Coffee Growers Federation (FNC) is the leading institution that has guided, regulated and directed the coffee policy in the country for 90 years. It is undoubtedly an important institution with strong ties to the national government and international organizations. The FNC's mission is to "promote the well-being of the Colombian coffee farmers through an effective; democratic and representative trade union organization". The FNC has created a complete set of organizational instruments that intervenes at every link in Colombia's coffee value chain: from the implementation of the purchase guarantee program³ that guarantees to buy coffee from Colombian producers to the regulations for export and marketing in the country⁴. However, support from the FNC and its organizations focuses mainly on the technical level in the coffee production. We recommend including guidelines and regulations towards sustainability in coffee production and including the whole value chain to achieve higher competitiveness for farmer. Moreover, we propose a policy aimed at improving structural conditions in rural areas, such as providing quality education, safety measures, access to public services, housing and health services as well as improving road infrastructure that enable better exchange between rural and urban areas.

In addition, we find that programs aimed at paving the way for local coffee businesses selling high-quality coffee and coffee by-products and encouraging domestic coffee consumption should be established to reduce farmer's dependence on green coffee exports.

Bolivia: One of the major problems in the Bolivian coffee sector is the lack of a clear representation of the sector at different governance levels. Such a representation, e.g. by a unified coffee organization, could strengthen national and international trade relations and propose strategic plans to improve the sector. Currently, there are three main organizations representing the coffee sector in Bolivia (FECAFEB, ANPROCA and ANAPCAFE), which implies conflicts of interests. The parallel organization has jeopardized an efficient support of the coffee sector in Bolivia, and resolving the ongoing conflicts between these organizations is perhaps one of the biggest challenges that the sector currently faces. We conclude that having just one organization representing the coffee sector in Bolivia (instead of three that are in conflict to each other) would be the most urgent policy initiative with the most direct and important impact. During the project, we were able to support efforts of those organisations and provided platforms for dialog and exchange. These events reinforced our confident that future collaboration is possible. The annual "Presidential Cup" contest, which is the national replacement for the "Cup of Excellence"⁵, is a good example of such a cooperation between different actors, but the integration of specific stakeholders, for instance ANAPCAFE, is still not working due to a lack of mutual acceptance among the different

³ The program consists guarantees the purchase of all Colombian coffee produced in Colombia at a standard price

⁴ Decree 1714 of the Ministry of Commerce, Industry and Tourism, Resolution No.05). of 2015 of the National Committee of Coffee Growers, Resolution 04 of 2015, Resolution 02 of 2016).

⁵ Premier coffee competition and auction worldwide. It is the highest award given to a top scoring coffee (<https://allianceforcoffeexcellence.org/>)

actors. While reduction to one organization remains our key recommendation, strengthening collaboration among the currently three main organisations may be the best solution in the short term.

We also found that specifically producers are not well connected with other actors (e.g, consumers and baristas), and there is still a prevailing view regarding roasters and exporters primarily as competitors.

Although the Bolivian coffee policy considers necessary aspects such as providing inputs for organic production, the national market, and enhancing production systems, we found other important aspects that are still missing. Given the continuing coffee price crisis, increased competition in international markets and high production costs, no mechanisms have been proposed to compensate for yield loss and to promote producers' competitiveness. Bolivia could learn from Colombia where a more comprehensive policy is in place.

Results obtained vs. Results expected

The results obtained are in general consistent with the concerns and questions set out in the research plan in both countries. The study allowed mapping the different value chains in Bolivia and Colombia that complement the already known traditional structure of a coffee exporting country. With our research, we were able to identify the marketing of high-quality coffee as an alternative to improving the livelihoods of producers. New business models for farmers and other coffee professionals in the origin countries have emerged. Not only by exporting high-quality coffee, but also by selling it on the national market due to an increasing demand and a growing coffee culture in the larger cities. New contacts with buyers of coffee cherry products were made. The results now allow us to make concrete recommendations for the different actors in the value chain. An unexpected result was the shift from organic agroforestry to chemical-intensive monocultures observed in Bolivia as farming families engaged in specialty coffee.

Information regarding practical application of Results

In the case of Bolivia, we applied qualitative and quantitative research methods that aimed at involving as many representatives of the coffee sector as possible. We gathered information from more than 60 stakeholders of the sector, including farmers, cooperative representatives, roasters, traders, baristas, and others. Our recommendations are tailored to the Bolivian coffee sector and can be implemented in the short and medium term. Most recommendations are ready to be implemented with the appropriate institutional and financial resources. In Bolivia, where the National Coffee Program is currently running, the results and recommendations could be used immediately, if the political will was there.

In view of the results in Colombia, it is possible to develop implementation strategies that have a positive impact on the sector. We believe that it is essential to integrate and strengthen relations between the government, coffee businesses, the FNC and the academia. In this way, it may be possible to bring about significant policy changes that contribute to fair relationships between producers and other actors in Colombia's coffee value chain. Unfortunately, the political decision-makers did not participate and showed little interest in the research, whereas many farmers, baristas, and others attended the project's events.

Questions that merit further exploration

In both countries, environmental sustainability is not seen as an important factor in the production of specialty coffee. Both production systems, monocultures as well as coffee produced under shade are able to cultivate specialty coffee. Therefore, the agricultural production system's influence on the final cup quality is hardly known. The conventional monoculture systems without shade and with high input on fertilizer and pesticides can increase short-term yields, but deplete soils, cause deforestation and biodiversity loss, and runoff of agrochemicals. Based on our results, we consider it important to ask the following questions: can quality, quantity and ecological sustainability go hand in hand? What possibilities are there for agroforestry and ecological sustainable cultivation systems, and how can they be promoted?

Yet, we shed light on the discussion of coffee farmer's profitability. With our research in two countries, hence with two different methods of calculating cost of production, we understand that time and further research needs to be invested in the topic of farmer's economic sustainability. We regard that calculating

farmer's production costs will be key to coffee farmer's viability and to secure coffee supply. A unified calculation method is needed to understand which type of farms, production systems, production zones and type of crop management achieve profitability including other livelihood dimensions.

Practical and Policy recommendations

Bolivia

Incentives for producing high-quality coffee

Our cost-benefit analysis points out that a great number of smallholders are not profitable in farming coffee. These farmers have two options: i) switching to cultivate other crops or ii) cultivating specialty coffee. Today, specialty coffee in Bolivia is commonly produced by medium or large sized farms. These bigger farms promote sun-grown monoculture systems for producing high-quality coffee and they need more smallholder farmers to secure their supply. Certainly, these systems are highly productive and are able to produce high-quality coffee, but we do not regard these systems as suitable for smallholder farmers. The input costs are very high and production is not sustainable regarding degradation of soils, soil erosion, loss in biodiversity, and deforestation. However, we find it important to include smallholders in the production of specialty coffee, but in a sustainable production system. Yet, these farmers need specific knowledge and education on crop management. Therefore, policies should foresee technical assistance for farmers in regard of quality improvement, which for example include choice of seedlings/crops, weeding, use of fertilizer, picking and selection of ripe coffee, separation of coffee, etc. Furthermore, to improve quality and production on the farm, initiatives towards a soft renewal of old plantations are needed. Different concepts to disseminate knowledge have proven their worth: farm-to-farm knowledge or trail farms that serve as educational centre for farmers.

Incentives for sustainable coffee cultivation systems

Policies should incentivize to keep the diversified production systems and the cultivation of environmentally friendly agroforestry coffee, which not only increases the farming families' food security and reduces production risks, but also responds to the global trend on consumption of more sustainable coffee. The promotion of more sustainable production systems is part of the Bolivian Coffee Policy, where organic agroforestry systems are foreseen to be promoted. Nevertheless, farmers need support and advice in managing these systems. Which for example means ensuring the availability of input for organic production. For the moment, there is no animal production in the Yungas, and for organic agriculture, animal manure is needed as a fertilizer. Moreover, access to markets to sell products other than coffee from diversified production systems needs to be ensured.

Research, education and training

We believe that Bolivia would benefit from specific research in their own country. A research centre, similar to Colombia's Cenicafe, which focuses on the entire coffee chain and in particular on post-harvest management and coffee processing technologies, could be of great advantage for Bolivia's coffee sector. The newly created research centre at the University of La Paz (UMSA) in 2019 is a big step in the right direction, with a MoU signed together with the Zurich University of Applied Sciences and moreover, a seed money grant received together with the University of Berne to initiate the scientific collaboration between the universities on the topic of sustainability in the coffee value chain. Other alliances with universities and technical centres of academic formation (e.g. the Technical Centre in Carnavi) should be established to provide access to knowledge and education. Universities should also build alliances with producer associations and entrepreneurs. Research should focus on adapting processes and technologies to local conditions, evaluating different methods of drying, processing and storing, under different environments and its effects on quality. It is also worth considering an educational center such as the SENA in Colombia, to strengthen technical knowledge along the whole value chain (including e.g. roasting, barista).

Furthermore, actions to strengthen farmers' organizations capacities in finance, management and administration are needed. Smallholder farmers need to know their cost of production to decide if producing coffee is profitable for them and if they should continue farming coffee. To know their costs and to make the decision, farmers need to have skills in bookkeeping. Research centres and extensional services

should create a simple tool to help farmers calculate their costs and need to give support and training in bookkeeping.

Finding ways to make coffee attractive besides coca

It is important to integrate coca in the coffee policy, because coca leaf production plays an important role in the coffee-growing regions. An approach towards the total substitution of coffee for coca is very difficult to implement, given the cultural and economic importance of coca for producer families. Other ways to make coffee more attractive are to support farmers in generating higher incomes either through promoting to produce higher quality or by paving the way for selling coffee in the local market through providing support in processing, roasting, and packaging coffee. Farmers should also be supported in selling other products for higher incomes such as sultana or fruits from diversified agriculture.

Promote a national coffee drinking culture

The growing coffee consumption in the national market is one of the biggest opportunities for farmers to improve their incomes and livelihoods, since selling further processed coffee to the local market achieves highest incomes for farmers. Therefore, policies to protect the national market and to incentivize the consumption of local coffee should be considered. For instance, economic and non-economic barriers for the import of coffee could be used. If such barriers are implemented, levies from taxes for example could be invested in research funds. National consumption could be promoted and enhanced by organizing events, such as an annual coffee festival, including local cafes, roasters, baristas and of course farmers and farmer organizations.

Colombia

Turn back to high-quality varieties and to shade coverage

Colombia's experienced research institutes have been researching new coffee varieties for decades, however with a focus on high-yielding varieties rather than on high-quality in recent years. The FNC propagated and subsidised high-yielding Catimor varieties such as Colombia and Castillo for large-scale cultivation, which as a result reduced the total varietal diversity on the farms. Particularly in Huila, coffee farms are thus very productive. Nonetheless, we find it important not to lose the focus on quality in order for the farming families to achieve high prices. Higher prices would then pay off for applying a greater percentage of shade coverage. In the past, the FNC promoted high-intensity coffee cultivation without shade trees, which is also the case in Huila. Such a cultivation scheme requires frequent use of fertilizers and pesticides, which has negative impact on the environment and on farm employee's health. Cost of fertilizers have risen steadily in recent years, which also affects the profitability of farms. Alternatives to conventional fertilizers are plants that ensure natural fertilization of the soil through symbiosis with nitrogen-binding bacteria.

Creating attractive living conditions in rural areas

In Colombia, we regard it as important to improve the living conditions in the rural areas, especially for the rural youth, to restrain the migration to the cities. Making rural areas more attractive by improving infrastructure and education opportunities at primary and secondary level and for technical schools are important actions by the government to do. Support is moreover needed in making farming more attractive with helping small-scale producers to significantly achieve higher incomes by producing higher quality coffee, diversifying production (e.g. micro lots, different fermentation processes) finding access to new high-quality markets, as well as to financial and public services. Practically we propose to establish platforms and events that enable producers to meet buyers and being able to create direct business relationships with international clients, establishing long-term trade relations and achieve fair prices. It is important that the young generation enjoy cultivating coffee, making a sustained living from it and feeling positive about it.

Besides, the government must guarantee its institutional and security presence in the rural areas of the country. Therefore, it is essential to continue and consolidate the peace agreements with the revolutionary armed forces of Colombia "FARC" and seek a dialogue process with the National Liberation Army "ELN".

Research, training and education

As in Bolivia, we consider education for farmers and for the young rural farming generation in particular as key for sustaining the future of coffee farming in Colombia. They should receive utterly professional support with technical training programs using for example workshops and training sessions to take their knowledge of coffee cultivation to a higher level. It should help them turn their coffee farms into model businesses regarding sustainable high-quality production and farm profitability. In addition, new undergraduate and graduate coffee programs should be established and the young generation should be motivated to join these educational programs. The University of USCO Surcolombiana has launched a Coffee Master Program in 2019. We regard it as vital to advance in policies that encourage research and technological investment not only from the FNC but also in higher educational institutions capable of generating new knowledge with the aim of producing social, environmental and economical sustainable coffee.

Moreover, as it is the case in Bolivia, we conclude that training in business, bookkeeping and financial skills with which coffee growers can build on to run a profitable business is vital for the future of coffee farming. Only if farmers are aware of their costs, they are able to make the management decision if they should be producing coffee or if they need to shift to another crop.

Supporting the local coffee market

We regard it as critical to not only promote the agricultural sector, but also to support local coffee businesses along the whole value chain. Enhancing the domestic coffee market means developing and implementing measures to support producers, traders, roasters, coffee shop owners, baristas in their business ideas, and to raise consumer awareness of the local market. The FNC should also foster the growth of the roasting industry and the consumption of coffee in the domestic market, which allows coffee growers to sell their coffee at higher prices. Furthermore, should the regulations on coffee exports in Colombia be reviewed and aligned, in order to strive for an increase of exporting value-added coffee products such as roasted coffee.

Creating new sources of income

Last but not least, we believe that additional sales of new products help farmers to increase their incomes and therefore improve their livelihoods. New products could be generated with processing sultana for consumption for the national and international market. Sultana could be sold directly to local coffee shops and consumers and therefore revenues achieved can be high.

Publications and other activities

Academic Programs, Partnerships, Workshops and Events

- Kick-off Workshops: visiting market chain actors (producers, producer associations, roasters, coffee shops, coffee quality institute in Bolivia, coffee school SENA in Colombia), round table and workshop on ideas to enhance and promote coffee quality within the country and new market opportunities for sultana including SWOT analysis (Bolivia and Colombia, October 2017)
- Creation of Centro de Investigacion y Calidad de Café C.I.C.C. at UMSA University La Paz; Johanna Jacobi in advisory board.
- Memorandum of Understanding MoU between CEC ZHAW, CESURCAFE USCO and C.I.C.C. UMSA, 12 August 2019.
- Launch of Coffee Master Program at Universidad USCO Surcolombiana, exchange of lecturers between CESURCAFE USCO and CEC ZHAW
- Research proposal on fermentation submitted end of November 2019 (between USCO and ZHAW): *Análisis de la fermentación controlada de café con y sin microorganismos iniciadores y su influencia sobre la calidad en taza»*
- The University of Bern (CDE) received a Seed Money Grant (University of St. Gallen's Leading House for the Latin American Region) of CHF 20'800 to initiate the scientific collaboration together with the University of La Paz (UMSA) on the topic of sustainability in the coffee value chain, December 2019.

- Final Workshops in Bolivia and Colombia, presentation of preliminary results to market chain actors and policy makers, discussion and exchange on future collaboration; sultana book and video presentation, and degustation of sultana recipes by slow food Bolivia, farm visit with farmers to high-quality production farms, coffee cupping at local coffee shops
- Coffee Course (lecture and practical activity) for local value chain actors (farmers, baristas) from CEC ZHAW during final workshops in Bolivia and Colombia on (1) green coffee quality, (2) freshness, degassing, and aroma (3) drying green coffee, moisture content and water activity
- Discussion forums with the Ministry of Rural Development and Land, advice to the National Coffee Program, regular exchange with FAO, FECAFEB and ANPROCA

Non-scientific Publications

- Publications on sultana for producers, producers associations and coffee shops: Booklet on sultana processing (Spanish), sultana recipe book (Spanish), three videos on sultana (Spanish with English subtitle)
- Four interviews in different television channels (Bolivia)
- Short film on final workshop in Bolivia (Spanish with English subtitles)
- Short film on final workshop in Colombia (Spanish)
- Policy brief Bolivia
- Policy brief Colombia
- International Policy brief, planned for beginning of 2020
- Book of research results (Colombia)
- Congress (Colombia), share results with the steering committee and the national coffee congress as well as government actors
- Lecture at World of Coffee in Warsaw to present project results is foreseen (<https://worldofcoffee.org/>).

Scientific Publications

- Value Chain and Cost-Benefit (Colombia) in peer reviewed journal, work in progress (planned for beginning of 2020)
- Cost-Benefit analyses and value chain innovations related to livelihoods (Bolivia) in peer reviewed journal, work in progress, planned for beginning of 2020
- Chemical composition of sultana and impact of drying, in peer reviewed journal, work in progress.
- Comparison of different drying methods in Bolivia on quality, in peer reviewed journal, work in progress.
- Comparative analysis livelihood Bolivia / Colombia, planned for 2020
- Working Paper *Compilation of Results*

Abbreviations

ANAPCAFE	National Association of Tasters, Roasters and Baristas
ANPROCA	National Association of Coffee Producers
CEC	Coffee Excellence Center at Zurich University of Applied Sciences
CDE	Center for Development and Environment at University of Berne
FECAFEB	Federation of Exporting Coffee Producers
FNC	Colombian Coffee Growers Federation
ICBT	Institute of Chemistry und Biotechnology

USCO	Universidad Surcolombiana
SCA	Specialty Coffee Association
SENA	National Training Service
PCA	Principal Component Analysis
VCA	Value Chain Analysis
ZHAW	Zurich University of Applied Sciences

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