



**Making the banana market work for Nepalese farmer, traders and consumers**

Bananas are one of the most commonly eaten fruits in Nepal, enjoyed by all – from elites to the poor, depending on the price. The price, however, varies considerably through the year, in part due to some seasonality and in part due to the import of Indian bananas, which distorts the local market. Banana taste and quality also varies greatly according to the variety and the place of production. Although locally grown bananas are highly prized in the hills, commercial banana cultivation is focused in the Terai. In 2014, Helvetas conducted an assessment of the market potential of various small enterprises in the Terai and recognised the banana value chain as one with high growth potential. We identified a variety of production constraints, including poor quality planting material; low availability of the varieties most favoured in the market; limited yields due to inadequate water supply; and high losses due to adverse weather events. We further found that farmers often received a very low price for their bananas, and that there was under-exploited potential to develop side-products from banana fibre. This briefing note documents the way in which Helvetas has facilitated changes in the Nepalese banana value chain that have benefitted small farmers, traders and consumers.

## **Production constraints and solutions**

### **Planting material**

Edible bananas have been cultivated to be virtually seedless; they are thus usually replicated by vegetative means. The regular system of banana propagation used by farmers in the Terai is through planting rhizomes sourced from a mother plant. This is quite limited in terms of the number of plants that can be obtained. It is however possible to replicate banana germplasm (genetic material) in a laboratory, and thus create large numbers of plantlets very rapidly. These tiny plantlets can be grown on in a nursery and be ready to plant out in a field within six months. Helvetas approached a company (Nepal BioTech Ltd) interested in developing such an enterprise, linked them to specialist advice, and accompanied them in the process of setting up a tissue culture laboratory on the outskirts of Kathmandu. The banana varieties chosen (William Hybrid, Malbhog and Grand Nain [G9]) correspond to those most demanded in the market. Furthermore, following negotiations with the Nepal government supported by Helvetas, these varieties are now all government endorsed. In the Terai, we worked with individuals interested in setting up private banana nurseries using plantlets purchased from the company, and with farmers who wanted establish banana plantations.

The first banana plantlets were produced *in vitro* in 2015; that year some 2500 plants were raised in a nursery and sold to local farmers. There are now three tissue culture laboratories producing plantlets (two belonging to Nepal BioTech and one another company, NBAFP), and 16 banana nurseries run by private entrepreneurs. Tissue cultivation processes have been perfected, and at least four varieties are offered to ensure some genetic variation in plantations. This is important given the susceptibility to disease of plantations that are all the same genetic material. The tissue culture laboratories are also expanding to produce other crops such as pineapple and papaya. Meanwhile, the private nursery entrepreneurs have expanded and invested in improved infrastructure. In both laboratories and nurseries, young women are the favoured employees. In total, the nurseries currently (in 2019) employ some 190 young people.

### **Farmer groups supported by Enterprise Service Providers**

Initially it was farmers who owned a substantial amount of land who came forward to convert their land into banana plantations. However, Helvetas actively sought to include many small farmers, facilitating their organisation into farmer groups.

Successful banana cultivation requires knowledge and contacts. Technical advice on cultivation matters is provided by the private nursery entrepreneurs who, in case of need, visit farmers to whom they have provided plants. Helvetas also works with private individuals who advise banana farmers in developing their business. Known as Enterprise Service Providers, ESPs, these people maintain regular contact with the farmers and help them to access inputs such as fertilizers and irrigation equipment, services such as credit and insurance, and link them to traders.

### **Access to credit**

Small farmers are generally unable to invest in improved technology unless they have access to credit at affordable interest rates. This is typically difficult to obtain for agriculture – particularly for women since they rarely have land certificates in their name. Helvetas has therefore worked with credit institutions to promote agricultural loans at rates of 8 – 12%, and facilitated the formation of farmer group cooperatives, which also offer credit. We have also supported over 1250 small farmers without land certificates to obtain them, so that they are eligible to obtain credit and crop insurance through private led financial institutions and insurance company.

### **Drip irrigation**

Banana plantations require irrigation during the winter in order to yield enough fruit to give a good return on investment. This is often done using water pumped from underground sources that is then flooded in channels across the fields. Although the water table is high in the areas concerned, groundwater use is not desirable for reasons of sustainability. Helvetas is therefore supporting the introduction of drip irrigation. This is about 70% more efficient in water use than channelled irrigation; results in no soil erosion; and can also be used to target fertilizer

applications, increasing efficiency by 30% and reducing run-off. Whilst requiring some capital investment, drip irrigation is “environmentally friendly” and ultimately cost-effective.

### **Insurance**

Banana plantations are easily damaged by wind storms and hail, as well as by pests and diseases. Helvetas has worked with insurance companies to develop private insurance packages for farmer groups; with all group members joining such schemes, it is possible to insure them against major losses. We also worked with the government at policy level, advocating for insurance against crop losses that covers more than the initial investment but considers the value of the crop at harvest.

### **Banana marketing**

#### **Ripening technology**

In commercial production, bananas are harvested and transported when still green and not fully ripe, as once ripe they bruise easily and must be transported and sold very rapidly. In some cases, green bananas are chemically treated to ripen them artificially. The agent generally used is industrial grade Calcium carbide, which can contain traces of other chemicals and is detrimental to health. Its use is banned in many countries but persists illegally.

There is a better method of slowing or hastening fruit ripening, which entails storing bananas in chambers in which levels of ethylene, the gas which naturally causes ripening, are regulated. Helvetas identified various private entrepreneurs who were interested in investing in such technology and put them in touch with manufacturers (based in India). As a result, in total 14 ripening chambers or storage units have been established. All are located close to markets, and within ready access to banana farmers. In total, they employ some 140 young people, including small itinerant traders who collect bananas from the storage units daily, and sell them in towns.

Ultimately consumers benefit from this system, both because the bananas are chemical-free and thus healthy, and because prices fluctuate less.

#### **Contract farming**

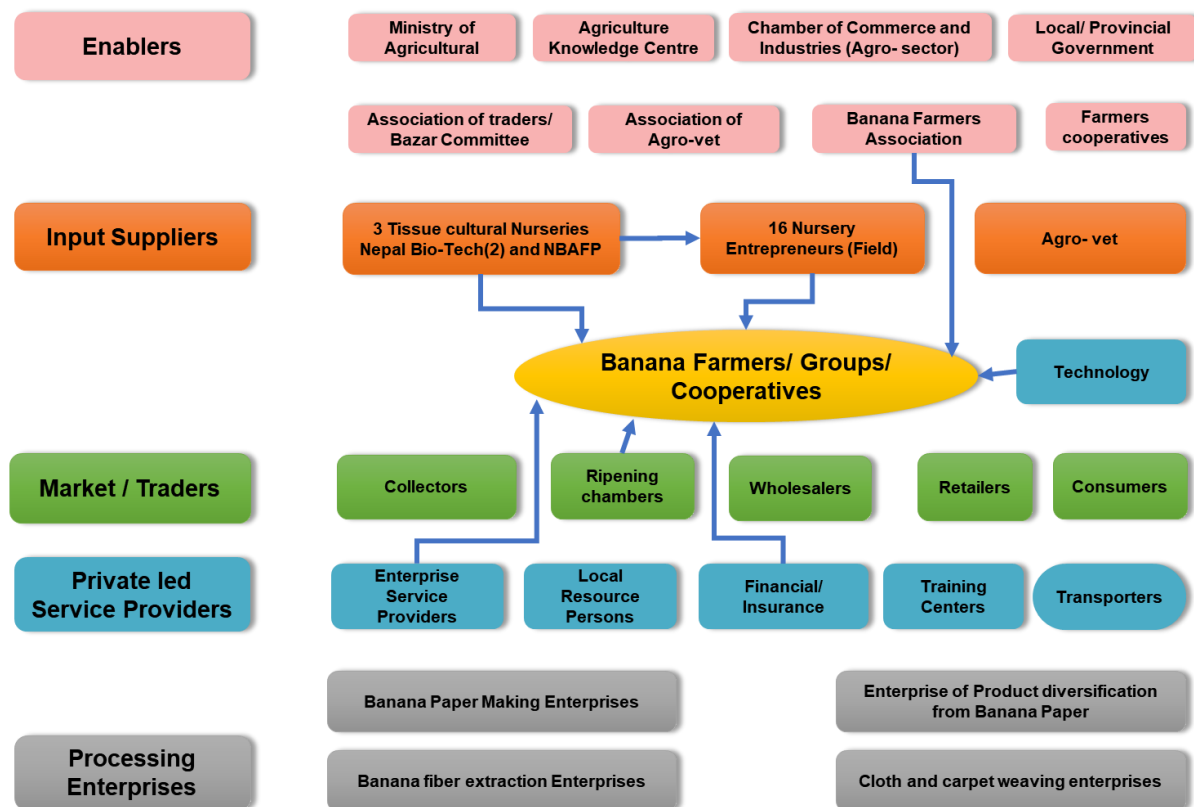
Helvetas has also facilitate a form of contract farming whereby banana traders seeking to ensure the maximum use of their ripening chambers contract farmers to cultivate a certain volume of a specific banana variety at a fixed price. In this way, farmers are guaranteed a fair price, and traders an adequate volume of fruit.

#### **Banana fibre products**

Banana stems are a source of fibre that can be made into attractive products – from handmade paper to cloth. There is a growing craft industry in Nepal making use of this fibre. Helvetas has linked farmers to banana paper manufacturers and other enterprises and has supported marketing through links to trade fairs.

## The banana value chain mapped

Helvetas engagement is indicated in blue lines



## Involving multiple actors

Working systemically requires a full understanding of the value chain overall – the variety of different actors, the way that they interact, and ways to stimulate growth. For Helvetas, a crucial feature is that this growth is beneficial to individuals from disadvantaged backgrounds – farmers with very little land; landless labourers; unemployed young people; returnee migrants who have saved some money but have little idea as to how to best invest it. Through our engagement in the value chain, many such individuals have demonstrated true entrepreneurial spirit, and have significantly changed their lives, and that of their family members, for the better.

*“I was landless, and my only option was to go to Qatar as a labourer. I returned eight years ago, with backache after three years of hard work. Everyone told me to stay, and I looked for something to do. I did Enterprise Service Providers course for one year in modules, and then things started; now I have about NRs 50 lakh [some USD 43,000] of property and an annual turnover of even more. Now if I need credit, I have no problem. For me Helvetas has been so important in terms of ideas and contacts. For example, I am thinking of expanding into banana paper production. I have no idea about the technicalities of this, but Helvetas has arranged a visit to a place in Delhi where I can go with some others and learn all that I need to know...”*



Top Lal BK, Banana nursery entrepreneur, Gulariya municipality, ward 4 (interviewed February 2018).

Major Actors with whom Helvetas interacts in the banana value chain	
Major Actors	Roles
Banana Association	<ul style="list-style-type: none"> <li>• Advocacy and lobbying for banana related policy development.</li> <li>• Facilitation of Cost of Production for crop insurance package development</li> <li>• Facilitation of loan linkages and crop insurance process</li> <li>• Product marketing</li> </ul>
Banana cooperative and financial institute	<ul style="list-style-type: none"> <li>• Credit Linkages /Loan support</li> </ul>
Crop Insurance company	<ul style="list-style-type: none"> <li>• Risk sharing through the crop insurance</li> </ul>
Private sector (plant production, cultivation, fruit ripening)	<ul style="list-style-type: none"> <li>• Tissue-culture production and supply of healthy plantlets</li> <li>• Technical support through coaching and training</li> <li>• Entrepreneurship skill enhancement of farmers</li> <li>• Tools and technology (eg drip irrigation) tested and supplied</li> <li>• Buy-back guarantee from storage unit entrepreneurs</li> </ul>
Local government	<ul style="list-style-type: none"> <li>• Cost sharing for expansion</li> <li>• Creation of working environment</li> </ul>
Province Government	<ul style="list-style-type: none"> <li>• Support import and export process</li> <li>• Cost sharing and expansion modality developed</li> </ul>
Federal Government	<ul style="list-style-type: none"> <li>• Policy formulation, review and revision (import export and crop insurance related)</li> <li>• Verification - endorsement.</li> <li>• Research.</li> </ul>



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