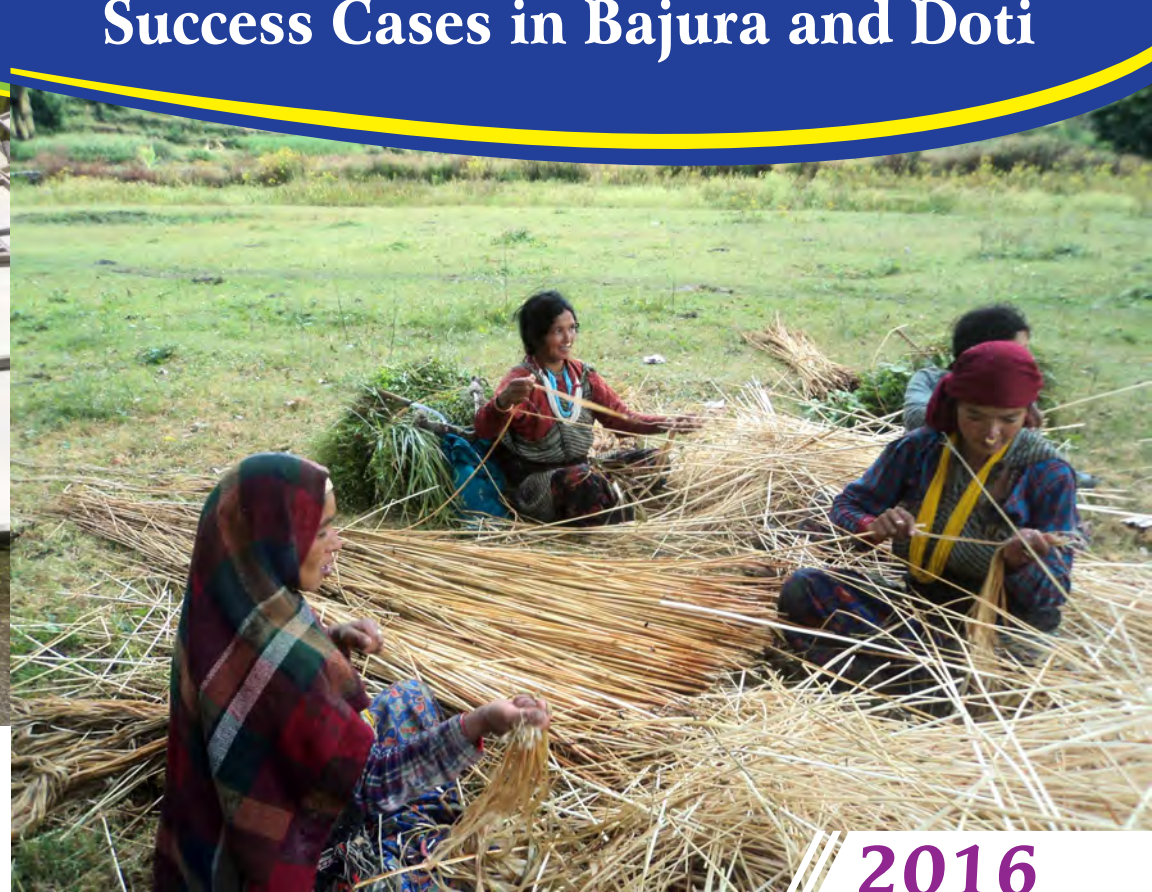


# Forest-Based Enterprises & Success Cases in Bajura and Doti



2016



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Multi Stakeholder Forestry Programme  
(MSFP)

## **Forest-Based Enterprises and Success Cases Under**

**Implementation of Forest-Based  
Enterprise Promotion Programme in  
Bajura and Doti**



**Multi Stakeholder Forestry Programme (MSFP)**

**Published under**

**Multi Stakeholder Forestry Programme (MSFP)-  
Implementation of Forest-Based Enterprise Promotion  
Programme in Bajura and Doti districts**

**Case study, success cases and photos collected by  
FORWARD Nepal**

**Edition: First**

**Published year: 2016**

**Published copy: 200**

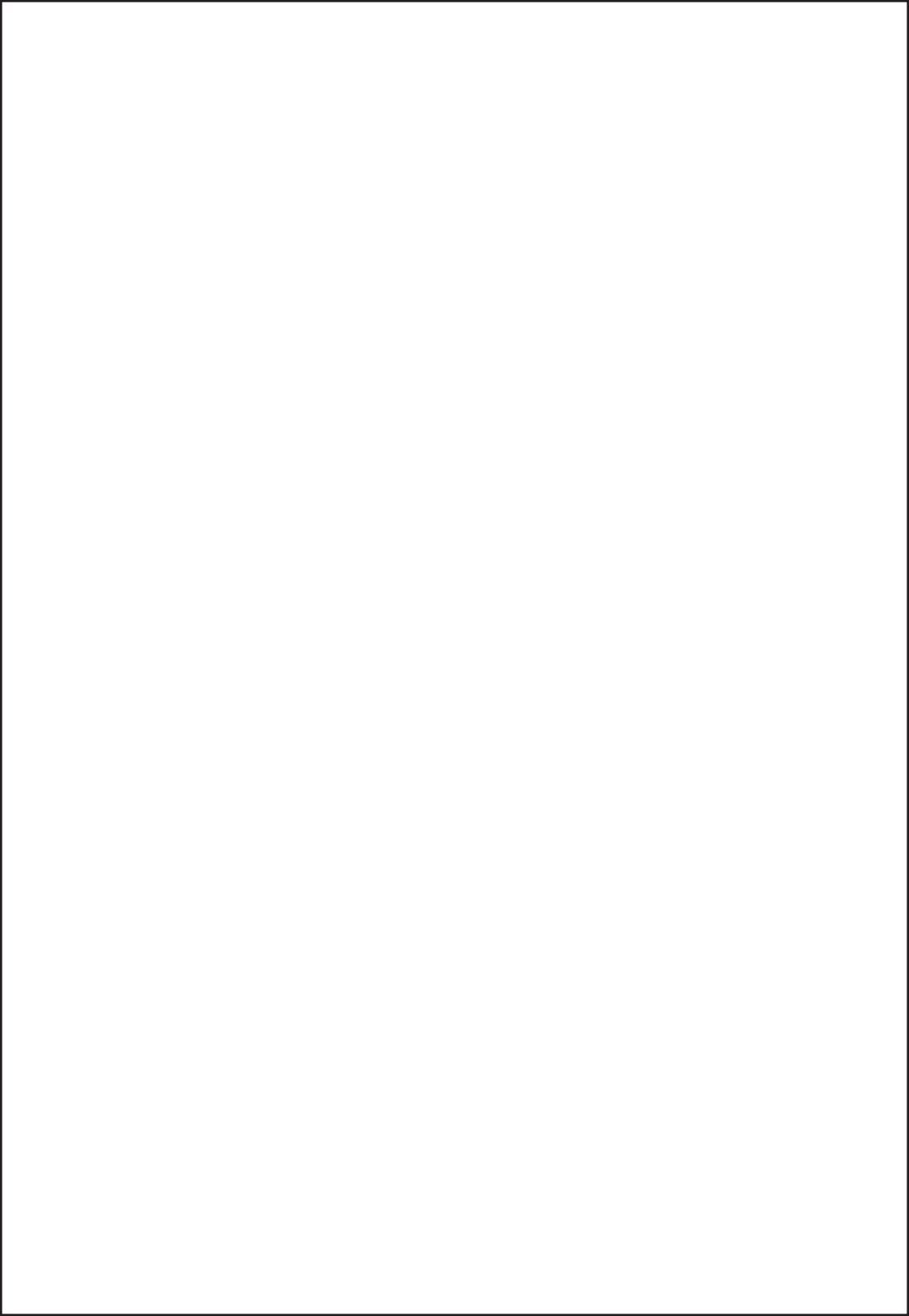
## Acknowledgement

It gives us immense pleasure to bring out a glimpse of the forest-based enterprises and success cases under the project entitled "Implementation of Forest-Based Enterprise Promotion Programme in Bajura and Doti districts". We would like to extend our deepest appreciation to all who provided us the possibility to complete this document.

A special gratitude to Service Support Unit (SSU)/Multi Stakeholder Forestry Programme (MSFP), without whose financial support the project would not have been possible. We would also like to extend our sincere thanks to SSU Cluster Office Surkhet for their guidance and constant supervision as well as providing necessary information regarding the project activities.

Our thanks and appreciation also goes to concerned district stakeholders who provided enabling environment for the smooth implementation of the project activities right from the very beginning to the completion of the project.

Last but not the least we are also indebted to the project beneficiaries for giving us much attention and time, and the data and information provided by them are the foundational asset for the preparation of this document.



## Project background

Forum for Rural Welfare and Agricultural Reform for Development (FORWARD Nepal) has been implementing the "Forest-Based Enterprise Promotion Programme in Bajura and Doti districts" in collaboration with Malika Integrated Social Service (MISS-Bajura) in Bajura district and Rural Development Centre (RDC) Nepal in Doti district. The project period is 20 months starting from November 14, 2014 and ending on July 15, 2016. The Service Support Unit (SSU)/Multi Stakeholder Forestry Programme (MSFP) is financially supporting the project. The programme focuses on poverty reduction, and the betterment of the socioeconomic status of the poor people in Bajura and Doti districts through involvement of rural people in the forest-based enterprises. The major objectives of the MSFP forest-based enterprise promotion programme are (i) enhancing the living standard of people through their engagement in the forest-based enterprises for improved food and nutrition security, income generation and employment, and (ii) safeguarding environment by adopting sustainable agricultural practices and sustainable use of forest resources for both timber- and non-timber-based enterprises.

The strategies of the programme include (i) devise a value chain approach for selected sub-sectors within forestry main sector, (ii) establish new forest-based enterprises, with technology transfer through trainings and market development, (iii) promote existing forest based enterprises, (iv) create employment opportunities through engagement in forest based enterprises, (v) facilitate and support local forest user groups for scientific forest management, nursery establishment and climate change resilience, and (vi) seek collaboration with various stakeholders including governmental

and non- governmental organizations. Creation of jobs for poor and disadvantaged group in the forest-based sectors, promotion of forest-based enterprises, and assure private sector involvement and investment in the forest-based enterprises are the expected outcomes of the programme. The key activities of the programme are (i) identification and selection of the Local Forest User Groups (LFUGs) which can promote the forest-based enterprises, (ii) aware LFUGs and beneficiaries, and other stakeholders in strengthening of the forest-based enterprises, (iii) skill development trainings on sustainable production, harvesting/collection, processing and quality improvement of non-timber forest products, (iv) special trainings on nursery management and agro-forestry based in relation to sustainable forest management, (v) promotion and development of new types of enterprises and value addition to the existing forest-based enterprises, (vi) workshops to ensure private sector's involvement and investment in forest based enterprises, (vii) knowledge transfer and scaling up the technology, etc.

With the support of MSFP activities, many rural poor and disadvantaged people have been employed in the forest-based sectors. It is expected that the trained persons would continue working in this sector and earn money on the regular basis. The programme has become successful in the establishment and strengthening of the forest-based enterprises in Bajura and Doti districts. Some of the promoted/strengthened enterprises include Lokta, Allo, Shitake mushroom, Sisnu powder, Duna Tapari, Beekeeping. People have been aware and capacitated on sustainable collection/harvesting of NTFPs (e.g. Olive, resin trapping, Nigalo, Timur collection, Tejpat, Dhatelo seeds, Rittha etc.).

# Forest-based Enterprises



## Electrically Operated Sisnu Drying and Grinding Technology

Stinging nettle (*Urtica dioica*), Sisnu in Nepali, is an omnipresent wild herb found in the forest of hills and mountains of Nepal. In spite of its nutritive and medicinal value, Sisnu is neglected and underutilized plant for its burning and itching properties. Sisnu has been used traditionally as relief of joint pain, urinary problems and allergies as well as food in the form of curries and soup for centuries by people residing in the hills of Nepal. Presently, the demand for Sisnu is gradually increasing in the urban areas due to its positive impact to diabetes patients and ailments.

Traditionally, Sisnu plants are cut off some feet above the ground unsustainably using indigenous tools like a sickle and leaves are dried in the sun on the ground. After 3 to 5 consecutive days of sun drying, the dried leaves are put on sack and gently threshed using a stick to make powder. The powder is then packed and marketed. By doing so, there have been a lot of complaints from consumer of Sisnu powder about the consistency in quality and taste. The issues of sustainable collection and processing also arise from unsustainable harvesting practices.

Thus, to maintain and enhance quality and consistency of Sisnu powder, Multi Stakeholder Forestry Programme (MSFP) has introduced electrically operated drying and grinding technology for the production of quality Sisnu powder so as to make it one of the best selling products which can be easily marketed for the first time in Doti district. The innovative technology has multiple benefits like

simple, efficient, cost effective, consistency in quality and easily marketable product. The poorest among the poor, mostly women and disadvantaged groups are involved in the collection and drying of Sisnu leaves in Doti district. The availability of this technology has directly helped to improve their livelihood and socioeconomic status.

The main inputs in electrically operated Sisnu drying and grinding technology are locally available Sisnu leaves as raw material, potash for washing, solar dryer for drying and grinding machine for grinding and powder making.



*Sisnu Solar Dryer*



*Sisnu Grinding Machine*

The Sisnu powder making from dried Sisnu leaves introduced by MSFP follows a series of activities which include:

- ***Sisnu leaves collection***- The upper tender leaves of Sisnu are picked off from the green stem by using sickles or scissors with wearing gloves on hand. The green leaves are directly brought in Udhog (Industry) without grading. The collected green leaves are graded removing damaged leaves and other weeds. The collectors receive NRs. 20 per kg of green leaves after grading.
- ***Washing***- Graded leaves are washed in water at first to remove dust and inert particles. A proper mixture of potash and water

is usually used to kill insects, pest and other organism while washing. These operations are performed by entrepreneurs.

- **Drying-** Solar dryer as well as poly house are usually used in drying process. The green leaves are put under poly house or in the solar dryer for 3 to 5 days for drying. By doing so the quality (taste and green colour) of Sisnu powder retained while in traditional technology, it is likely to deteriorate quality because of the direct sun drying. In this drying process, there is no risk of mixing dust brought by wind as all are covered.
- **Processing-** The dried leaves are then put into an electrically operated grinding machine to make powder. The powder is then packed into various weights as 100 grams, 200 grams, and 500 grams and one kilogram.



*Sisnu* Collection



Grading of *Sisno* Leaves

**Local and Regional Trading-** The marketing of *Sisnu* powder is done by entrepreneurs themselves through local traders, wholesaler, retailer or individual consumers. The products are further traded on regional market through wholesaler or trader who directly buy

products from the Udhog. The price of 500 gram Sisnu pack is NRs. 250. Local markets (Dipayal, Silgadhi, Budar, Sarswatinagar) as well as regional markets (Dhangadhi, Nepalgunj and Kathmandu) are the major markets of Sisnu powder.

FORWARD Nepal jointly with RDC Nepal implemented the Sisnu processing enterprise under MSFP with the objective of creating jobs for rural people through the establishment of the new Sisnu enterprise. The programme established three new enterprises of Sisnu as “Ghanteswor Sisnu Prasodhan Udyog” at Gaira of Ghanteshwar VDC, “Namuna Mahila Sisnu Udyog” at Laxminagar and “Raju Sisnu Prasodhan Udyog” at Daud in Doti. Sisnu enterprise is also a new enterprise in Doti district managed by private sectors. The technology introduced by MSFP facilitates quality production of Sisnu powder probably the best selling product from Doti district which can be easily marketed. Similarly, it is the best practice for maintaining sustainability of resources. At present, 140 persons (113 women and 128 DAGs) people are getting income from Sisnu powder enterprise involving in Sisnu collection, drying and marketing of Sisnu powder.

## Eco-friendly Production of Leaf Plates (*Duna and Tapari*)

Sal (*Shorea robusta*) is a dominant and multipurpose tree species in the Terai, and inner Terai along the lower slopes of the middle hills of Nepal. Sal is mostly for timber, firewood and its seed for oil. Besides, its leaves are used for making the plate.

Leaf plates making is a forest-based enterprise and one of the traditional occupations in Nepal which depends upon the local availability of Sal leaves from nearby forests. The use of Sal leaf-plate is a traditional practice in Nepal. In Hindu culture Sal leaf plates are considered as religiously pure (*Chokho*) and hence its leaf plates and bowls are generally used during various occasions like wedding, worshipping, religious and social festivals. Presently Sal leaf plates are widely used in the hotels, restaurants and other places in the markets.

The increasing demand of Sal leaf plate not only in the local market, but also in Kathmandu and even overseas, as alternative to plastic/polymer-based product, avoid the burden of washing metal plates, and makes the environment eco-friendly. Religious relevancy and promoting eco-friendly environment, Multi Stakeholder Forestry Programme (MSFP) in Doti district introduced a new technology to prepare Sal Leaf plates by using machine due to its cost effectiveness, hygiene, and also as a replacement of traditional handmade leaves' plates. The existing products made by rural people are very poor in physical strength and far from clean and hygienic. Making of Sal leave plates has been growing as commercial activity employing hundreds of women in Doti district. Preparation of Sal leaves plates by the use of machine has many advantages as:

- The technology provides livelihood security to women with a minimum participation of men.
- A simple machine with minimum power consumption.
- Leaves are stitched on duly modified machine to get a desired shape and size.

- The molding, trimming, pressing and drying of leaves are done through a single operation by pressing the liver of the machine.
- The heating property of die is sufficient to sterilize the product and thus getting rid of fungicidal spray.

Abundantly available Sal leaves are mostly used for Leaf plate making in Nepal. Based on size, three types of plates are practiced in Doti district. A duly manually operated machine fitted with three dies has used in making Sal leaf plate. To make these plates more lasting, laminate with polythene is required. The entire process of Leaf plate making, using manually operated machine follows the following steps:

- **Collections of fresh leaves-** Women appear to be the main collectors of leaves from the forest. The leaves are collected from the lower part of the tree and the fallen leaves from the ground. Generally twigs with 4 to 5 leaves are plucked and then the leaves are removed from the twigs. The practice is not to disturb the young leaves or buds. On an average, it takes one and half hour to collect 1,000 leaves from the tree. The collectors collect Sal leaves early in the morning.
- **Drying of leaves:**The collectors sell fresh green leaves to Udhyog directly at the rate of NRs. 15 per kg. One kg of green leaves contains 180-200 numbers of leaves. The drying process is mostly done by entrepreneurs in Doti. The process of drying the leaves is the most important aspect of Sal plates making. The leaves collected from the forest sinked into water first kept in shade/ open space for 3-5 days for drying. Drying in the sun can reduce flexibility and quality of the leaves.



Sal Leaves Collection

- **Stitching of leaf:**The leaves are stitched into round with little sticks (*Sinka*) which become the raw material for making leaf plate and bowls by pressing.
- **Pressing of leaf by machine-** The machine is electrically operated and has dies of different shape and sizes. The stitched leaf plates are put in the indicated place on the machine. Through heating, it gives shape of plates and bowls automatically. Usually, three types of plates are practiced in Doti. The biggest one is called as Tapari, the middle sized is Bota and the smallest one is Duna.
- **Packaging:** The Tapari, Bota and Duna thus prepared are packed using polythene. Generally, one pack of Tapari, Bota and Duna contain 10 Tapari, 100 Bota and 100 Duna. The number of leaf plates in one pack may vary enterprise to enterprise.
- **Storage:** The final products are then stored in the cool room. When entrepreneurs get an order from traders and consumers, he can have sufficient stock to supply immediately.
- **Marketing of the product:** The marketing of Sal leaf plates is done by entrepreneurs themselves through wholesaler, retailer and also directly to consumers. Entrepreneurs collect demand from traders, wholesalers, retailers and consumers and supply to them in the required quantities. The price of one Tapari, Bota and Duna are NRs. 4, NRs.0.6 and NRs.0.5 respectively. Local markets as Dipayal, Silgadhi, Budar, Dadeldhura and Dhangadhi are the major markets for Sal leaf plates.

With the support of MSFP, FORWARD Nepal and RDC Nepal established three new enterprises of Duna Tapari as "Sahara Duna Tapari Udyog" at Ranagaun, "Nabadurga Duna Tapari Udyog" at Budar, Chhatiwan and "BP Nagar Duna Tapari Udyog" at Barcheen VDCs of Doti district with engagement of private sectors. Currently, 111 persons(92 women and 96 DAGs) are benefitted to generate income from the enterprise. The beneficiaries are expected to increase with demand of leaf plates.



Stitching of Sa/ Leaves



Pressing of Sa/ Leaves using Machine



## Lokta (*Daphne spp*) for Nepali handmade paper

### Introduction

The raw material of Nepali handmade paper(*Daphne spp*) is popularly known as Lokta in Nepali and belongs to Thymelaeacease family. Generally, two species of *Daphne* as *D. bholua* and *D. papyracea* are collectively known as Lokta plant in Nepal. Lokta is mainly used on a cottage industry scale in manufacturing handmade papers.

### Habit and Habitat

Lokta plant is a small shrub reaching up to a height of 1 to 6 meters depending on its species. *Daphne bholua* is evergreen or deciduous erect or spreading type shrub reaching up to 3 meters height, but generally attaining heights of 5-6 meters where areas not heavily exploited. The leaves are entire, dull green and leathery. The flowers are white, flushed and externally pink or purplish. Flowering occurs usually in December-May depending on altitude and climatic factors. The fruit is an ellipsoid berry, green at first and then purple or almost black when ripe. The fruits ripe from March-June and, each fruit contain a single



Lokta Plant

seed. *Daphne papyracea* is evergreen and much branched erect shrub reaching up to a height 3meters. The leaves are dark green, entire, smooth and thinly leathery.

The flowers are white or greenish white and have either a faint scent or none at all. Flowering time is from October-February. The fruit is fleshy berry, orange colored at first, then a deep red when fully ripe. The fruit ripens from April-May.

The Lokta plant generally appears more gregariously on the southern slopes of Nepal's Himalayan forest between 1600 m to 4000 m. It grows naturally in the moist soil of the forest and prefers medium to light crown cover and usually avoid sites with dense crown cover.

### Use of Lokta

Lokta plant is used to prepare the paper which is known as Nepali handmade paper, and it is one of the most exportable products of Nepal. Although the traditional use of Nepali handmade paper largely confined to government documents or religious texts, today Nepali handmade paper is widely used in international markets such as USA, Japan, Canada and European countries for preparing calendar, wood block prints, masks, stationary, notebook, gift wrapper, envelopes, greeting cards, lampshade



Nepali Hand Made Paper from *Lokta*

and as printing material for books and other publication. Nepali handmade paper is famous for its durability and resistance to tearing, humidity, insects and mildew.

### Steps of making Nepali handmade paper

**Lokta harvesting and drying:** The white, fibrous bast of Lokta plant is the principal raw material for manufacturing Nepali handmade paper. The inner bast can be extracted from a mature 1.5 to 2m plant. The entrepreneurs dry the bast and store it for some days before use. This helps to minimize the bacterial and fungal attacks. While drying, there is a loss of 50% of its initial weight.

**Processing method:** There are two common methods of making Nepali handmade paper-traditional method and improved method. Paper made from the traditional method (with an addition of beater machine) has higher market demand than the paper made by any other method. A brief description of these methods is given below.

#### α) Traditional method

Traditional method of paper-making is divided into three steps as follows. As all the stages in the process are carried out by hand, it is an extremely labour intensive and time consuming process.

**Soaking and rinsing:** A bunch of Lokta bark is soaked in water for at least six hours, then rinsed in cold water. This is done to wash out the greasy, water soluble organic matter and to remove dirt and foreign matter. Further cleaning and scraping can be carried out by hand if necessary.

**Pulping:** Wood ash is mixed with water and allowed to percolate. This process is repeated until the mixture deemed to be sufficiently strong (to make the liquor alkaline). Then this is filtered to remove dirt particles and other insoluble materials. Wood ash is superior to caustic soda for producing quality paper. To reduce the fuel wood consumption, ash is replaced by caustic soda (NaOH), 10-20% by weight, depending on initial cleanliness of the raw material. 3 kg of fuel wood is needed for preparing the pulp sufficient for producing 1 kg of paper.

The liquor is then heated in a metal cauldron, to boiling point over a wood fire or stove. Then the previously soaked and cleaned bark (approximately equivalent to the quantity of liquid) is placed and boiled continuously until the alkaline liquor is nearly absorbed or have evaporated (at least an hour). This process sufficiently softens the bark. The softened bark is then beaten with a mallet or stone pestle until it reduces to homogeneous dough like pulp. It is then placed in another vessel containing pure water and stirred until it loses all stringiness and will spread out quite easily when shaken under water.

**Preparation of pulp using beater machine:** Nowadays, most of the groups and companies have started to use beater machine instead of beating by hand for pulp making. Use of beater machine minimizes the labour cost and improves the paper quality as it become more even in thickness, which is one of the parameters to measure its quality.

**Sheet formation:** A wooden frame along with a finely knitted net is placed slightly below the surface of water, and the measured

amount of pulp is poured into the frame (amount of pulp depends on the desired thickness of the paper). After agitating the pulp water mixture, the frame is gently lifted from the water, allowing excess water to run through the screen, forming the sheet of the paper. The pulp is then dried on the frame by being exposed at an angle inclined towards a big fire or the sun. As most of the paper-making places are located in higher altitude, it needs longer time for drying the paper. After drying, the sheet is removed from the frame slowly and carefully. The screen leaves a distinctive pattern in the paper that is the characteristic of handmade paper.

**Finishing:** Irregular edges can be trimmed with a sharp knife and polishing is accomplished by placing the sheets in a flat board and rubbing it vigorously with a smooth stone or similar object. Each sheet is then folded and paper is usually sold in bundles of Kori (one Kori equals to 200 sheets of paper).

### β) Improved method

The Department of Cottage and Village Industries developed an improved method for manufacturing paper with Japanese technical assistance. Different steps under this method are outlined below.

**Soaking and rinsing:** A bunch of Lokta bast is soaked in water for at least six hours, and then rinsed in cold water. This is done to wash out the greasy, water soluble organic matter and to remove dirt and foreign matter. Further cleaning and scraping can be carried out by hand if necessary.

**Boiling the bast:** The bast is boiled for 2 to 4 hours in a vat containing a solution of caustic soda (NaOH), 10%-15% by weight of bark, depending upon the initial cleanliness of raw material. This

serves to remove the non-cellulose organic matter and to separate the cellulose fibers prior to bleaching and beating. The use of caustic soda can apparently reduce fuel wood consumption to as little as one third.

**Washing:** The bark is then washed in running water or two to three times in a tank of fresh water to remove caustic soda. Either way, a considerable amount of water is required, and therefore adequate amount of water availability is a prerequisite prior to installing paper manufacturing plants in a site.

**Beating:** Till this step, the bark is sufficiently softened through soaking and boiling. It is then transferred to a wooden or stone mortar and it is beaten with a mallet or a hammer to reduce its size before transferring to a manual or hydraulic Hollander- type-beating machine. Here, the bark is beaten for 15 to 30 minutes to produce the homogeneous pulp from which the paper is made. The process of beating ensures that: fibre aggregates are separated to produce single fibers; fibers are crosscut or split; the fibres swell and their surface become gelatinised. These effects endow the fibers with certain desirable properties such as: the ability to intertwine or fuse flexibility, plasticity, surface size ability and viscosity.

**Sheet formation:** The homogeneous pulp is transferred to the pulp tank, usually made of wood or concrete. Use of mild steel tank is discarded because it tends to gather rust, which will discolour the paper. Some form of vegetable mucilage (extracts of Hibiscus root- *Manihot edulis*) or polyethylene oxides added to the pulp in order to: (i) prevent the fibers from precipitating, (ii) keep the pulp

evenly distributed in the tank, (iii) prevent aggregation of fibers, and (iv) to retard the drainage of water when pulp is on the screen. The paper making frame made of wood with a wire mesh (or as in Japan with bamboo slats and silk or nylon mesh) is hung from the ceiling over the tank suspended from a flexible spring arm of bamboo. The Vatman slides the frame into the tank at an angle until it is completely submerged and then raises it from the liquor, again angling the frame so that the pulp 'flows' across the frame in a wave motion and the excess pulp is returned to the tank. The process is repeated several times, depending on the thickness of the paper required and to allow cross meshing of the fibers. The advantage of this method is that the pulp liquor in the frame constantly vibrates in all directions, causing the fibers to overlap thus giving added strength to the completed sheets.

**Finishing, sorting, trimming and polishing:** After sorting the sheets are graded and then trimmed to a size according to demand. Rough edges can be removed with a sharp knife.



Drying of *Lokta* Bark



Drying of Paper



## Allo (*Girardinia diversifolia*)

### Introduction

Allo (*Girardinia diversifolia*) also known as Himalayan Nettle is a fiber yielding plant that belongs to Urticaceae family. The ethnic communities in the mountainous region have been harvesting the plant to make rope, jackets, bags, namlo (head straps to carry the load) from generation.

### Habit and Habitat

Allo is a wild herb reaching up to a height of 2 meters with stalked, alternate, dentate and palmately divided leaves with three distinct nerves running to three lobes. The stem bark of Allo contains fiber with unique qualities, strength, smoothness and lightness. Leaf blades and stalks contain long awl-shaped bristles and stinging hair. Its flowers are sessile and borne on axillaries and terminal-branched spikes and red green to yellowish-green in colour. Flowering occurs in July-August and fruiting from September and early November.

Allo is found abundantly in the forest land, riversides and moist habitat in Nepal. It grows naturally at an altitude of 1,200 to 3,000 meters. The main production pockets in terms of commercial scale harvest are located in Sankhuwasabha district in the eastern Nepal, Nuwakot, Ramechhap, Sindhupalchok, and Dolakha in the central region, Parbat, Myagdi, and Baglung in the western mountains, Rukum, Rolpa, Dolpa, Humla, Jumla, Dailekh, and Pyuthan in the mid-west part of the country and Darchula, Doti, Bajura and Dadeldhura in the far-west region. However, it is found in most of the hill and high-hill districts of Nepal.

## Harvesting and Processing of Allo

The harvesting period of Allo is during October/November to January/February. The Allo bark is stripped off from the green culms/stem by using sickles wearing gloves on hand. The bark can be dried in one day and peeled barks are bundled and stored in a well ventilated room. The barks

are cooked in a drum containing water with ash of any kind of wood. Instead of ash, caustic soda can also be used. The cooked fiber is washed in running water accompanied



**Allo Fiber Extraction**

by frequent beating with wooden mallet or hammer. The fibers thus extracted are mixed with rice husk (chaff), or maize flour or in a white clay solution to bleach the pulp to obtain a white shining fiber and making it soft. The main use of the rice husk is to make the fibers soft and suitable for spinning.



**Allo thread**

After bleaching, the clay flour or chaff is removed by washing it and beating it again. The pulp is dried in the sun. After softening, the fiber is ready for spinning into yarn. Mostly women are involved at all stages of collection and processing. The spinning is either done with-constructed spindle made of wood or with the spinning wheel. Weaving is done in the handloom. Cotton thread is usually used as a base when weaving. The woven cotton is then moulded to various product designs based on market demand. These woven clothes are also pressed by using a pressing machine to fetch higher value. The final product of Allo is exported to international markets especially to USA, Europe and Japan through exporters.

### Uses

The fiber obtained from the bark of Allo has been used for making a variety of woven products as clothes, sacks, bags, fishnets, ropes, shoes, namlo (head straps to carry the load), blankets etc. The Allo clothes commonly known



*Allo Cap*



*Allo Shoe*

as Bhangro also used to make coats and caps. In some districts of Nepal, young shoots are also consumed as vegetable.

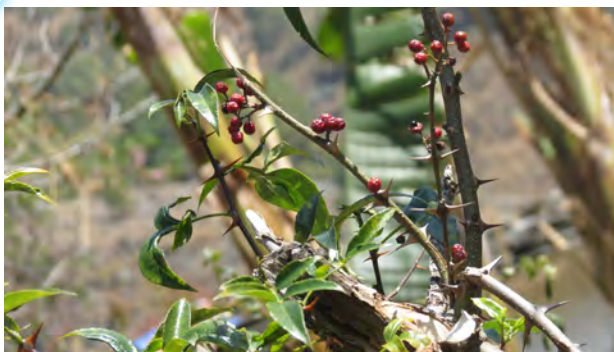
## Timur (*Zanthoxylum armatum*)

### Introduction

Prickly Ash (*Zanthoxylum armatum*), Timur in Nepali is an important medicinal plant that belongs to the Rutaceae family. Presently, eight species of *Zanthoxylum* have been reported from Nepal, among which *Zanthoxylum armatum* is the most widely used species.

### Habit and Habitat

Timur plant reaches up to 5 meters in height having corky bark and numerous long straight spines on the branches and leafstalks. Leaves are opposite,



*Timur Plant*

pinnately compound with narrow winged stalk. Leaflets are 2-6 paired ovate to lanceolate, toothed and sparsely gland-dotted. Flowers are very small and green or yellow coloured and appear in short branched lateral clusters.

Fruits are 3 to 4 mm in size, globular, red, wrinkled and aromatic. Seeds are shining black in colour with an aromatic husk which becomes red on maturity. Flowering season of Timur is from March-April and the fruits ripen in the period from September to November.

Timur is a small shrub found in sub-tropical to temperate region, ranging from 900 m to 2500 m from mean sea level. It grows naturally in the well drained soils and survives on soils with low fertility and resists strong acidity. Timur appears as small plant or shrubs on forests, degraded slopes and the edges of cultivated lands. In Nepal, *Z. arma tum* is found in more than 30 districts, especially in the mid-western districts.

### Use of Timur

Timur is important for the medicinal value and the fragrance. Timur fruits are also used as spices. It has medicinal value and used in cough and cold, tonsillitis, headache, fever, toothache, dizziness, diarrhoea and dysentery. Essential oil extracted from the dried fruits of Timur is traded in the national and international markets, where oil has been used as a flavouring agent and in perfumery. The oil possesses disinfectant, deodorant and antiseptic properties.

### Sustainable harvesting of Timur

The harvesting of Timur usually starts during October to November when ripen fruits start falling to the ground. The fruits should be picked from at least 3 to 4 years old plant, but it should be ensured that fruits contain high oil. The fruits can be harvested either by hand picking or shaking the plant with use of plastic or cloths placed on the surface. Only fruits need to be harvested without disturbing the plant. Excessive harvesting may render plant unsustainable. Therefore, 80% harvest of total yield is regarded as sustainable. The harvested fruits are cleaned and shade dried to retain the volatile

oil. Drying in the direct sunlight evaporates the oil from the fruit. The fruits are well dried in shade to prevent fungal attack. Fruits are then stored in jute bags when they are hard and kept in well ventilated dry rooms.



Timur Fruit

# Success Cases

## Improved Cooking Stoves: A New Profession for Youths

Gairagaun Village Development Committee (VDC) is one of the rural VDCs situated in the eastern part of Doti district (Far-western development region of Nepal). Although only about 40 kilometers far from the district headquarter, Gairagaun VDC still has no access of motorable road.

The source of fuel for food preparation of residents of Gairagaun VDCs is firewood from nearby forest. As a matter of fact, the traditional cooking stoves that community was using consumed large amount of firewood and required more time for cooking as compared to the improved cooking stove (ICS).



**Improved Cooking Stove making**

FORWARD Nepal, RDC Nepal, DAYS and RDSC with MSFP, AEPC and Gairagaun VDC supported to overcome these problems and made Gairagaun VDC an indoor smoke free VDC in Doti. MSFP supported to install ICS in 177 households of the VDC. These organizations also conducted a five days ICS promoter training, where a young man Mr. Krishna Rawat was selected.



Mr. Krishna Rawat, 21, son of Mr. Maji Rawat is a member of a poor family of eight members in Chawala, from Ward No. 7 of same VDC. He had limited his study at grade 10, because of poor economic conditions of household. His family has been engaged in traditional agriculture, but could not earn satisfactory income.

When he participated in a five-day (May 26-30, 2015) ICS promoter training organized jointly by RDC-FORWARD Nepal, DAYS and RDSC with support from MSFP, AEPC and Gairagaun VDC, he decided to adopt a new profession as ICS Master- ICS installation. He has installed 80 ICSs in Gairagaun VDC within 45 days. He charged NRs. 200 for each ICS and earned NRs. 16,000 within given period.

He is not only engaged in the ICS installation, but also has disseminated knowledge and skills to Mr. Dev Bahadur Dhami and Mr. Jagat Chayada. Mr. Dhami installed 70 ICSs, and earned NRs. 14,000, whereas Mr. Chayada installed 90 ICSs and earned NRs. 19,000 within 47 days. Mr. Rawat states "not only me, but also my friends, improved the household income by ICS installation.

In Rawat's view, "ICS preparation provides new job opportunities for youths. ICSs keep less smoke in the house, thus creating a healthier environment and also saves cooking time. The use of ICSs reduces firewood consumption and protects the environment". He is thankful to the organizers and supporters.

## Resin Collection: An Easy Source of Income at Home

A rural village called *Phiramtal*, located at the remote part of Sarswatinagar VDC, Ward. No. 7 in Doti district of Far-western Development Region is at a distance of 24 kilometers from the highway (Budar, Chhatiwon VDC, Doti). There are 17 households of Janjati in the community. They do not have enough land for agricultural production and whatever is produced, can hardly meet the 3 month food security. To meet the household demand, they are working as wage laborers in the nearby villages. Moreover, there is poor access to government facilities. Because of lack of livelihood opportunities, movement to India is prevailing in search of employment opportunities.

The communities were unaware of employment opportunity at the local level. They even did not know resin collection has been practicing for many years by Dibya Resin and Turpentine Limited in the Community Forest around their locality. Resin Company

has hired labourer from the mid-western districts of Nepal due to unavailability of skilled labourers in Doti.



Sustainable Resin Collection Training

MSFP organized a two-day sustainable resin collection training in the locality, eight *Janajati* youth of that village participated in the training. The training developed their resin collection skills by rill method and also informed government rules and regulations while collecting resin in the forest. They also compared income to be earned from resin collection in one season with their earnings in India during a year.

MSFP also facilitated to create a suitable working environment for them in coordination with Resin Company. Finally, Resin Company appointed them as Resin Collectors.

The youth of *Phiramtal* village changed their decision from moving towards India in search of employment opportunities to remain in their locality and engage themselves in Resin Collection.

"I never thought I could earn Rs. 54,540 in six months", said Mr. Ishower Bahadur Thapa Magar, a Resin Collector appointed by Resin Company. He further adds, "I used to go to India in search of employment for 10 years. After deducting my expenditures I used to save only Rs. 25,000 in a year". During MSFP implementation period, he was residing at home because his wife was sick. When he knew MSFP is organizing a two-day sustainable resin collection training, he participated in the training and worked as wage labourer in the Dibya Resin and Turpentine Company. He collected 202 tin (3,636 kg) of resin. The wage rate is NRs. 15 per kg. He stated, "I earned double income while living at home caring my family". He is very thankful for the support of MSFP.



"In Doti, people used to link resin collection with caste. The upper caste as Brahmin, Chhetri and Thakuri assumed that they lose their identity if they are involved in resin collection. The disadvantaged groups do not have such a confidence to earn a handsome income from resin collection. Thus, the company at the beginning preferred to hire labourer from outside area than local labourer. But MSFP created interest and opportunities among the disadvantaged groups organizing sustainable resin collection training and continuous facilitation in the community. Further, he adds "Sustainable resin collection training made most of the collectors skilled. In the future, Resin Company will prefer local labourer rather than bringing labourers from outside", said Mr. Khem Oli, representative of Dibya Resin and Turpentine Company.

Multi Stakeholder Forestry Programme provided a two-day sustainable resin collection training to 175 collectors, including 75 new and 100 existing workers in different VDCs of Doti. Presently, all are working. The sustainable resin collection method helps to conserve forest without disturbing employment opportunities of local people.

## Sisnu (*Urtica dioica L.*) Powder Micro-enterprise: Women's Easy Source of Income

"I never believed, we can get income by processing of Sisnu, which we can obtain from moist woodland along rivers, forests and many shaded trails" said Ms. Kamala Joshi (52) from Ward. No. 6, Beltukra, Sarswatinagar VDC of Doti district (Far-western Development Region) of Nepal. She has seen that Sisnu was used to feed cattle in her community and Dalit community consumed Sisnu as *saag* (green leafy vegetable).

Though she belongs to Brahmin family, economically her family is very poor. Her husband is a priest (Pandit). The money earned by her husband was not enough to feed the family and could hardly meet 3 months food security.

Her concept in Sisnu has changed when she participated in awareness and Sisnu processing training organized by FORWARD Nepal and RDC Nepal with the support of MSFP. She has been widening her knowledge on Sisnu enterprise, medical and socioeconomic value, collection, conservation and marketing of Sisnu powder.

She collected 75 kg green leaves of Sisnu and sold to Namuna Mahila Sisnu Prasodhan Udhyog at a rate of NRs. 20 per kg and earned NRs.1,500 in one month. Not only she, but also other women in Sarswatinagar VDC are collecting and conserving Sisnu plant.

The Namuna Mahila Multipurpose Cooperative, established Namuna Mahila Sisnu Prasodhan Udhyog with the support of MSFP

in Rawatkatte of Sarswatinagar VDC, Ward. No.7. The enterprise buys green Sisnu leaves at the rate of NRs. 20 per kg. The enterprise is involved in processing and grinding of Sisnu into powder. Twelve kg green leaves produce one kg powder. The powder is sold in the market at the rate of NRs.500 per kg.

Presently 102 persons, including 84 women are getting income from Sisnu collection. The collectors earned NRs. 38,170 by selling of Sisnu to Namuna Mahila Sisnu Prasodhan Udhyog. Collectors are happy and express obligation to MSFP for its support.

The problem of lending even a small amount of money from local lenders by these women has almost been solved. After the establishment of enterprises, especially rural women are directly benefited. The enterprise is managed by Namuna Mahila Multipurpose Cooperative, a cooperative established by the group of women. The demand of Sisnu powder is increasing nowadays. The product has been consumed at local markets as well as Dhangadhi, Mahendranagar and Kathmandu. "We are in profit now and our organization has given priority to this enterprise." said Ms. Jamuna Bohara, chairperson of Namuna Mahila Multipurpose Cooperative. She further adds, "The Namuna Mahila Multi Purpose Cooperative has initiated to declare the Joroyal area (Sarswatinagar, Ghanteswor and Chhatiwani VDCs) as the pocket area of Sisnu for Sisnu processing and marketing". The enterprise established with the support of MSFP becomes a point of attraction of all stakeholders.



Drying of *Sisno* Leaves

## Timur (*Zanthoxylum armatum*) Collection: from Fence to Farm Income of Women in Bajura

The far-western development region as a whole and Bajura district specially, shows complex socioeconomic characteristics. A large population of Bajura district is poor and illiterate. The home production from the less productive agricultural land hardly meets six months of food security. The existing historical patriarchal socio-cultural system firmly keeps women at a lower status than men and is less well off. Confined to traditional agriculture, women work as wage labourer to feed the family, support children's education, and other basic requirement.

Among the 24 VDCs of Bajura district *Kailashmandau* and *Brahmatola* VDCs are popular as **Basket of Timur**, where local communities use Timur as spice, manures and fence. People were unwilling to sell Timur to traders because of its low price in the village i.e. only NRs. 40 to 60 per kg. Improper harvesting and collection procedure reduced self-life and quality of Timur. Collectors faced skin allergies due to lack of proper harvesting techniques and collection materials. A large number of women were involved in the Timur collection since past. Though women were very hardworking and honest, they did not prosper until implementation of MSFP in *Kailashmandau*, *Brahmatola* and *Dahakot* VDCs.

In the beginning FORWARD Nepal and MISS Bajura organized awareness and sensitization programme for Community Forest Users Groups (CFUGs) of *Kailashmandau*, *Brahmatola* and *Dahakot* VDCs where participants gained a wider knowledge on Timur collection, market price, its value and conservation.



After the implementation of MSFP by FORWARD Nepal and MISS Bajura in Bajura district targeting women, poor and disadvantaged groups, a significant change has been brought into people's livelihood and income level. Thus, previously a fence plant has started to generate income at present.

Later, Timur collection and harvesting training was conducted according to Good Collection Practice (GCP) to 112 collectors of *Nateswori*, *Sugarmela*, *Jadepanikalli* and *Khenai* CFUGs of *Kailashmandau* VDC and 31 collectors of *Selapatal*, *Malewasain* and *Lamabanna* CFUGs of *Brahmatola* VDC. Further, MSFP supported Timur collection materials as Gloves and Cutter to 100 (98 women and 98 DAGs) collectors of Lamabanna, Selapatal, Melawasain, Thumlatal, Laliguras, Sundarilura, Thalahariyali and Syaulimela CFUGs of Dahakot VDC and Sugaremela, Jadepani Kalli, Natkailash, Khinnai and Nateswori CFUGs of Kailashmandau VDC and also facilitated Timur collectors for the marketing of Timur.

Women of *Bramhatola*, *Dahakot* and *Kailashmandu* VDCs are much influenced by the programme. Currently 89 collectors (88 women) of these VDCs are involved in Timur collection, conservation and marketing. They earn money ranging from NRs. 320 to 3,750. Men are also involved in Timur collection. After the intervention of MSFP, These collectors have earned a total income of Rs. 118,770 and the earning is going on.

Ms. *Tuli Devi*; a Timur collector of *Nateswori* CFUG of *Kailashmandau* VDC, explaining the value of Timur stated, "I am happy to express the importance of Timur in our lives. I have talked about the benefits of Timur to other people in the VDC, most often in the neighbourhood. We have now realized the economic benefits of Timur. Previously,

I was not eager to sell Timur to traders because of the low price. Now, I am able to earn Rs. 2,500 by selling Timur in the local market at NRs. 250 per kg. I have started conserving the existing 20 Timur plants nearby my house expecting higher prices in the future". She greatly appreciates the implementation of the MSFP in her locality.

Ms. *Ishara Devi Padhya*, a member of Nateswori CFUG of Kailashmandau VDC has been actively involved in Timur collection and conservation and convinced other members to do the same. She recalled, "I used to use Timur as a fence and manure, a very small quantity as spices being unaware of the importance of Timur and its economic benefits. After participating in the awareness program and Timur collection training, I came to know the importance of Timur. I have earned Rs. 2,250 by selling Timur in the local market at the rate of NRs. 250 per kg and feel like I found a new source of income, which helped to improve my livelihood status to a great extent. The collection material supported by MSFP has made Timur collection easier. I no longer suffer from skin allergies. I plan to collect Timur from community forest and earn more income".



Timur Collection

## Olive collection: A New Source of Income in Bajura

People of Bajura are food and livelihood insecure, and seasonal movement to India in search of employment is still prevailing. Because of unproductive agricultural land and low agricultural productivity, non timber forest products (NTFPs) have huge potential to be a reliable source of income for the rural people of Bajura where other income generating opportunities are limited. The northern latitude of Bajura covering *Kolti, Wai, Badhu, Jagagnath* and *Kotila* VDCs possess huge potential to increase income from Olive. Farmers have been growing olive to increase income and food security for many years. In spite of such opportunities and high market demand in the national and international markets, local communities are reluctant to harvest olive properly and thus every year, a large quantity of Olive fruits ripe, fall and rot. A crop of significant importance was lost without taking any potential benefits.

In order to change this prevailing situation into a fruitful opportunity, Olive Agricultural Cooperative was established in Bajura with the objective to develop and extend the marketing of Olive thereby enhancing the livelihood of rural people through increasing income and securing jobs.

MSFP jointly works with Olive Agriculture Cooperative in Local forestry groups as *Maluwapada, Kalshree* and *Patharchauka* CFUGs of *Wai* VDC, *Haudi Simayel* and *Dhimsera* CFUGs of *Badhu, Tusare* and *Jhamkedhaireni* CFUGs of *Kotila* and *Buragad* CFUGs of *Jagannath* VDC.

A joint event of Olive collection and seed preparation training to member of CFUGs was organized with Olive Agriculture Cooperative. MSFP also facilitated in marketing of Olive in coordination with Olive Agriculture Cooperative and *Janaprakash* Olive Firm. The *Janaprakash* Olive Firm buys Olive fruits from the collectors at the rate of NRs. 100 per kg.

Sixty-two people (41 women and 21 men) are getting income from Olive collection. Collectors are very much happy by this income. "The quantity of Olive purchased at this time is only for testing of Olive, where tested oil is of extra virgin quality with 9 to 13% oil content", said Mr. Janesh Bhandari, a Field Coordinator of the Promotion of Olive Production and Consumption in Nepal (GCP/NEP/ITA/056), field Office *Bajura*. By the next year the oil extraction process will be initiated and no Olive will get wasted. The marketing of Olive will be done by the Himalayan Olive Company.

Ms. *Kali Upadhya*, an active member of *Haudi Simayel* Community Forest User Group, *Badhu-6*, *Bajura*, participated in the awareness programme of Olive collection and



Olive Fruit Collection

seed processing training organized by MISS-Bajura and FORWARD Nepal. She has been widening her knowledge on Olive collection and its market price, value, usefulness and conservation.

She is positively influenced by the programme. Now she is involved in Olive seed collection and processing. She collected 50 kg Olive and sold to Janaprakash Olive Firm at the rate of NRs.100 per kg with total earnings of NRs. 5,000. Not only she, but also other women in *Badhu* VDC are collecting and conserving Olive. Remembering the benefits of Olive, Mrs. Kali said, "I am happy to explain the importance of Olive as a livelihood option". She greatly appreciates the implementation of the MSFP in her locality.

Mr. *Bishnu Buda*, Chairperson of *Maluwa Pahada* CFUG shared his happiness and said, "Previously, Olive seeds used to get wasted in our land and community forests. People even did not know how and where to use, and its other benefits. MSFP teaches us the contribution of Olive in our livelihood improvement and also facilitates in finding the market. In the coming year, we plan to extract oil from Olive and increase our income".



Olive Fruits