USE of natural resources for making and lacing fibres is linked to the cold climate and harsh environments that early man had to face. Fibres of different sizes were knotted and laced together to make many useful things from ropes to robes.

Over the years, technologies have changed with respect to both fibres and weaving. However, in many tribal areas weaving of wool still continues to be done in the traditional manner. A journey through the entire process with the help of a migratory tribe – Gaddi – and their indigenous tools is what we aspire to put forward. In short, from sheep to shawl, the traditional way is the theme of this article.

The Tribe
Gaddis of the Himalayas are a tribe that rears sheep and goat for meat and wool. They inhabit the states of Himachal Pradesh, Jammu Kashmir and Uttarakhand; and are believed to have roots in the Bharmour region of Chamba district (Himachal Pradesh). Owing to the importance of sheep and goat in their life, their livestock is called dhan (meaning precious, related to money).

The Gaddis follow seasonal migration and criss-cross the Himalayan valleys and peaks along with their flock. With the number of dhan ranging from 200-400 in a flock they look like an army marching on the road. Two to four people collectively rear the flock that is often guarded by dogs.

During winters, they camp in forests at lower altitudes while during summers and rainy season, they migrate and camp in the alpine areas of the Himalayas above 3500 masl altitudes. For about half a year, i.e., November to April, these alpine areas remain under snow.

During May, when snow starts melting, alpine areas progressively blossom with colours of every hue and plants that are highly nutritious for livestock. Species such as Eurotia ceratoides, Trachydium royleli, Festuca spp. that occur in the alpine regions are some of them. Gaddis invariably mention “neeru” (Festuca sp.) and “buggi” (T. royeli) as important fodder species for their livestock. These species are known to possess higher protein content. On the other hand, the quality of Pashmina has often been linked to consumption of Eurotia ceratoides by goats in the Changthang plateau.

Thus, tracking the availability of nutritious fodder, the Gaddis start their journey from the lower altitudes during...
March and arrive in the alpine areas in the month of June. One can see these nomadic graziers with their livestock camping in these alpine meadows. After the rainy season, as temperatures start plunging, Gaddis start their return journey during September to lower altitudes. They cover almost 400 kilometres to and fro on foot.

The sheep provide them raw material, i.e., wool fleece for weaving traditional woollen products. However, to obtain wool and make it be weaveable, several processes have to be followed.

**Shearing:** Shearing refers to cutting of wool fleece from the sheep body without harming the animal. To obtain wool fleece, sheep are sheared twice a year, once while commencing the upward journey during March-April and the other during the commencement of their return journey in September. Today shearing is done with automated shearsers and in special centres that are set up for this purpose.

However, shearing was traditionally done in an open area using shears locally called “Kripi” or “Kaat”. It is just like any household scissor except that the two iron blades are joined at the base. Each blade is more than six inches long and almost an inch wide. We have seen sheep being dipped in running water to clean the debris before shearing. Once clean and dry, the sheep is laid to the ground and sheared.

Wool fleece is then collected in sacks and brought to the village for processing. On an average, a mature gaddi sheep that weighs around 30 kg yields 1-2 kg wool fleece/year fetching somewhere between Rs. 500 to 800/kg.

Wool mainly consists of protein; it is quite distinct from cotton which is mainly cellulose. Fibre diameter is an important characteristic that determines wool quality. While high quality Merino wool is typically between 12 to 24 μ, the gaddi sheep wool has an average fibre diameter of around 28 μ.

**Carding:** The wool fleece is washed to remove dirt and stains. Some people reported the use of *Sapindus mukrosii* fruits and bark of *Grewia optiva* for washing. These species are rich in Saponins and are used by the local people for hair wash and bathing.

Consequent to washing, the wool is spread for drying taking care that it does not get dirty. Once dry, the wool fleece is carded to make it fluffy, clean and knot-free. Carding is done using “Kanga” (hand carders). Kanga is basically a metal scrubber with coarse teeth that is mounted on a wooden block having a handle. Carding helps in untangling of wool that consequently becomes smooth and fluffy. It prepares the wool fleece for spinning. This is also done using Phanani, a bow-like tool.

**Spinning:** The clean and carded wool is spun to make woollen thread. The carded wool is placed in a bamboo basket known as “Kamoli” and is drawn out and rotated on a spindle such as to form a wool thread. Locally the spindle is referred as “Takli” and is made up of *Spiraea canescens* – a common shrub of the Himalayan region. Often aged people perform this task. They are so mastered in this process that they can be seen doing this while walking or chatting. Spinning is also done on a spinning wheel.
Dyeing: Dyeing refers to colouring of the thread. Usually, the white wool is dyed in shades of brown and black. *Juglans regia*, *Berberis* spp., and *Rheum* spp. were once used for this. Species of *Berberis* are known to have Berberin that imparts yellow colour. Similarly, Jugalone, a napthaquinone found in *Juglans regia* yields a brown colour. Natural dyes have always been used by the tribal communities for adding tinge into their dresses and houses. For dyeing the desired plant parts of the species are extracted, cut into pieces, and dried. Water is boiled in large vessels to which these roots are added. For dyeing 1 kg wool, ~100 gm plant part is boiled in ~5 l of water. In some cases, alum or ash is also added. After thorough boiling, the extract is sieved. To this, a small amount of salt is generally added, and wool hanks are dipped. The wool hanks are stirred to ensure uniform colouring. Later, they are dried in the shade and are ready for weaving.

Weaving: This is the final process that leads to formation of a product. It is done using “Rach” – a traditional simple wooden vertical shaft loom. In this, woollen threads are interlaced at right angles to form the fabric. The warp is a set of threads attached to the loom lengthwise locally called “Taana” whereas weft called “Baana” are at right angles to warp. They are interwoven to produce the desired products – mainly shawls and pattus.

The Gaddis are often seen wearing these shawls. It is an important item in their wardrobe recognized for its warmth and water-repellent properties. This is of immense help to the Gaddis who while grazing their flock in alpine areas have to bear frequent downpours.

Ironically, both the Gaddi lifestyle and the traditional ways of weaving are witnessing a decline. The younger generation of Gaddis does not prefer this profession, and slowly they are moving away from it. According to them, it is not remunerative as other jobs and is arduous. It leads to isolation, and there is no recognition. Often, during migration, they have to face problems including theft of their dhan. The fate of traditional weaving is no different. Indigenous knowledge on weaving, tools and its precursor activities is also depleting.

The depletion of this age-old knowledge that has been derived through years of trial and error will be a great loss to human society. This knowledge has not only provided clues to many modern developments but has also sustained the communities and the resources through generations.

The CSIR-Institute of Himalayan Bioresource Technology (CSIR-IHBT), Palampur is therefore engaged in documenting and digitising the traditional knowledge of tribal communities such as the Gaddis so that it is preserved for posterity. Use patterns of natural resources in their day to day life are being documented with details on their processing and know how. This also includes knowledge associated with tools, implements, taboos, customs, and society.

It is time we seriously think of reviving our traditional customs and practices. Awareness creation is the first step in this direction.

Alpy Sharma is a PhD student at the CSIR-Institute of Himalayan Bioresource Technology, Palampur (HP). She is working on natural resource use among the rural communities of Western Himalaya. She did her post-graduation in Environmental Sciences.

Sanjay Kr. Uniyal is a Principal Scientist at the CSIR-Institute of Himalayan Bioresource Technology, Palampur (HP), NH 20, Holta, Palampur, Himachal Pradesh-176061. Email: uniyal@ihbt.res.in. He did his PhD on high altitude forests of Himalaya and has more than 20 years of field experience in working in the Himalaya.