



### **MR. CHEWANG NORPHEL**

**Recipient of the Award for Application of Science and Technology for Rural Development - 2010**

Born: December 22, 1936

Chewang Norphel was born in middle class family of Leh. Norphel was a science student at Amar Singh College in Srinagar. He completed a diploma course in civil engineering from Lucknow in 1960. In June 1960, he joined the rural development department of Jammu and Kashmir in Ladakh as a Civil engineer. There is scarcely a village in Ladakh where he has not made a road, a culvert, a bridge, a building or an irrigation system.

Tucked between China and Pakistan, Ladakh is one of India's remotest and driest regions. No crops are grown in Ladakh's as its severe winter season. The only source of subsistence for majority of the inhabitants of this region is farming and limited livestock rearing. The region falls in the rain shadow of the western Himalayas. As such, it received very little rain resulting in crop failures and low productivity leading to diminishing interest of the farmers in farming activities. It has a short summer and farmers must sow their crops in month of April-June

Norphel proposes low-cost artificial glaciers as a substitute for dams, which to him are environmental and social problems, besides being a financial burden. He is better known as Ladakh's 'Glacier Man' who makes artificial glaciers in winter so that villagers can get water in summer for their fields, a full month before the snow starts melting on mountain tops.

The artificial glacier is an intricate network of water channels and dams along the upper slope of the valley at altitudes ranging from 1400ft and above. Norphel's glaciers are about 2 kms long and 150 ft wide with depths ranging from 3 to 11 ft. The little water in the mountain streams which generally goes waste in winter is diverted to a convenient spot with the help of pipes. Mud bundhs are made at intervals on the hill side to enable water accumulation. The glacial run off is stored in ice form at different altitudes above the village during 5-6 winter months when there is no agricultural activity. As the temperature increases in spring, the artificial glacier located nearer to the village starts melting first providing water for the crucial sowing season when the scarcity of water is at its peak. The melting process at different times thus continues with the increase in temperature thus providing assured irrigation to the fields. The communities are deriving immense benefit as their water woes have drastically been reduced. Increased water availability has also helped bring more land under irrigation promoting fuel, fodder and vegetable growth.

Norphel's first glacier at Phuktse village costs just Rs.19,000/-. Another one near the Changla Pass is bigger and cost Rs.60,000/-. Using fund from the State's Watershed Development Programme, 10 artificial glaciers were created in the villages of Mud, Sharasharmos, Igoo, Sakti, Nang, Stakmo, Saboo and Umla benefiting 1260 families.

The innovative 'Artificial Glacier Technology' is now a universally known terminology recognized as a unique, simple, cost effective and potential means of high altitude water harvesting and conservation technique. It provides a good model for thinkers and planners in developing countries.

Chewang Norphel, is currently working with a Leh based NGO called Leh Nutrition Project (LNP) as Chief Project Officer, Natural Resource Management. In recent times LNP successfully completed two

Artificial Glacier with support from the Indian Army's Operation Sadbhavana and three artificial Glaciers are under implementation with support from Department of Science and Technology.

Chewang Norphel has received many national and international awards and honours for his artificial glacier technology.

**Awards & Recognitions:**

2008: Eco-Warrior Award, Earth Matter Foundation

2007: Harmony Silver Award

2006: Limca Book of Record

2003: Certificate of Appreciation, Ministry of Water Resources

2002: Distinguished Rural Engineering Award, Center for Science and Environment

2002: Vasant Rao Naik Award

1998: Best Rural Engineer Award, President of India

1992&1992: Meritorious Service Award

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