LADAKH ECOLOGICAL DEVELOPMENT GROUP

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ANNUAL REPORT

Ladakh Ecological Development Group (LEDeG):

LEDeG is a non-governmental organisation (NGO) registered in 1983 under the J&K Society Act. Since its inception, LEDeG's mission has been to promote sustainable development of Ladakh which is in harmony with the traditional culture.
LEDeG choose priority areas where it could be accountable for change, and work in partnership with target beneficiaries and stakeholders, setting ambitious targets to bring about improvement in these areas.
LEDeG has been working in these fields since last 34 years and has been successful in achieving its goals. The work undertaken was appreciated and acknowledged and was therefore bestowed upon by numerous awards, such as:

- Right to Livelihood Award, also known as the Alternate Nobel Prize, in 1986.
- Sustainable and Participatory Development from the Danish organisation, Mellemfolkight Samverke, in 1989.
- Second prize for outstanding contribution towards popularisation of solar photovoltaic (SPV) programme by the Ministry of New and Renewable Energy Sources, Govt. of India, in 2002.
- Solar Energy Society India (SESI) NGO Award in 2005.
- LEDeG, with its partner SEED India, was declared Indian of the Year 2010 for Public Service.

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About the Founder

Helena Norberg-Hodge

When the Indian government first opened Ladakh to tourism and development in 1975, Norberg-Hodge came to Ladakh as a translator for a German film crew and was one of the first foreigners to visit the region. She is also one of the first foreigners in the modern time to master the Ladakhi language.

According to her, the impact of outside economic forces affected the rich Ladakhi culture. Norberg, who was worried about the future of Ladakh, founded the Ladakh Project in 1978 and was involved in 'counter-development', which informs people about the realities of Western consumer culture while working to restore respect for the local culture. She also helped establish several indigenous NGOs in Ladakh, including the Ladakh Ecological Development Group (LEDeG).

As the director of the Ladakh Project, Norberg and LEDeG were awarded the Right to Livelihood Award, known as the Alternative Nobel Prize, in 1986. She continued to work for localisation to counter the problems arising from globalisation. She founded many organsations and directed over many of them. To respect her work, she has been honoured with several awards.

"Helena Norberg-Hodge has long been a friend of Ladakh and its people."

Director's Note

"Growth is never by chance; it is the result of forces working together"

– J C Penny

Dr. Nordan Otzer

Every journey is driven by the people who undertake it, more so the journey of change- right from the people who initiate it with an idea, to the people who work every day to execute it, and finally to all the people who whose lives are being impacted by it. These people, thinking acting committed individuals, are the real force behind any successful enterprise and when they work together they can do miracles.

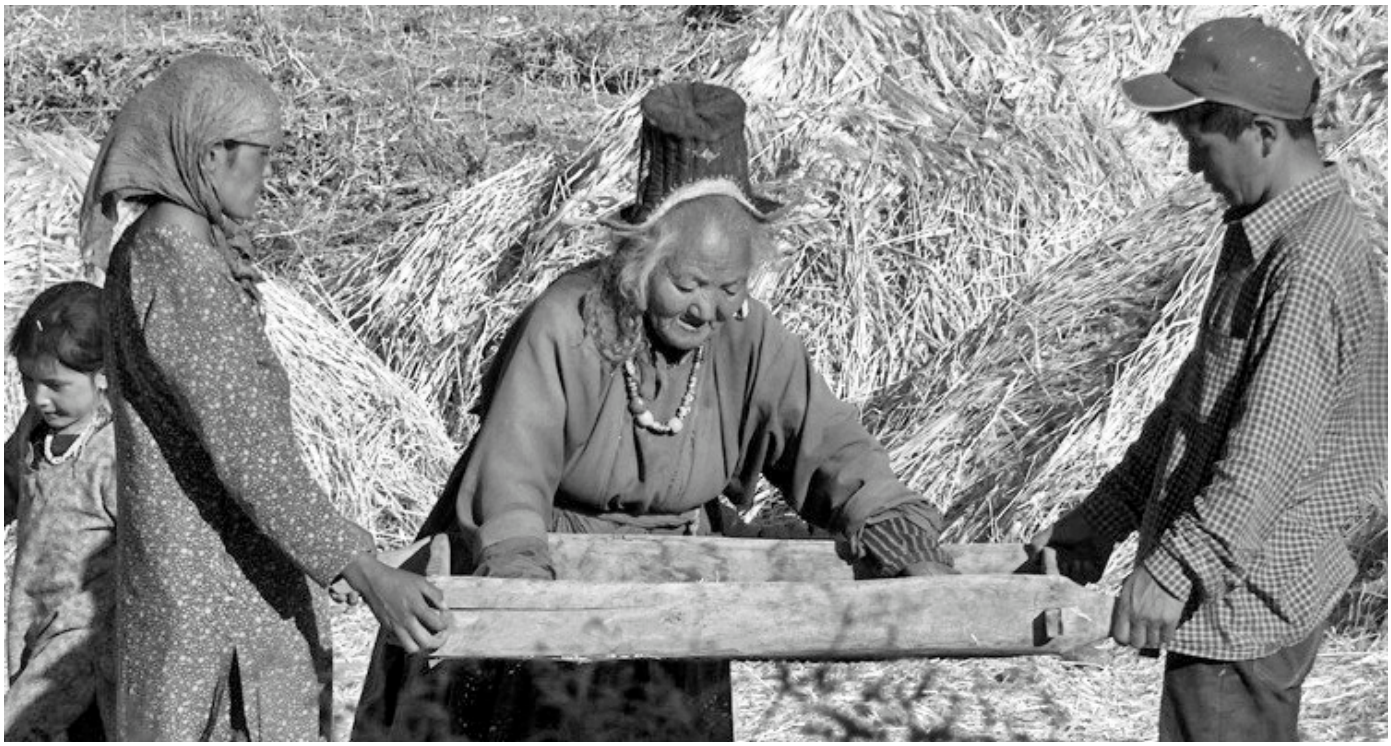
LEDeG's journey too has been made possible by the painstaking efforts of many such passionate individuals like Helena Norberg, Mr.Sonam Dawa, Mr.Phuntsog Namgyal Jora , Geylong paldan etc who have added immense value to the organization, working with us for years and continually striving to bring change at the grassroots.

2017-18 has been a year marked by growth in all aspects, be it quantitative and qualitative scaling up of our projects, the multiplied number of direct beneficiaries whose lives have been positively impacted, a strengthened pool of dedicated human resources, or the many successful partnerships with our supporters.

LEDeG has been working in rural sector, transforming lives and bringing comforts to the people of Ladakh, guarding environment with innovative ideas and initiatives such as greenhouse technology, trombe wall, active and passive solar housing, brought revolution in renewable energy in late 80's and 90's and the story goes on.

As the world moves from rural to urban areas in 21st century, so does the people of Ladakh. LEDeG anticipated the challenges encounters by the people of Ladakh and impact of urbanization on the fragile ecosystem of Ladakh. Therefore, we have shifted our focused to urban development as well and committed to transform Leh toward more Livable, resilient and inclusive Himalayan city while continue to engage with people in remote areas.

I take this opportunity to thanks our team members for their effort and dedication, who are at the heart of these organizations and whose belief, trust and support has brought us so far.



by Ms. Fariha Yousuf

Going for Organic Practices:

Ladakh is a high-altitude desert in the Himalayas. The ground is barren, the growing season is short, the air is dry, there is scarcity of resources and the winter temperature drops to minus 35°C.Despite all these challenges, Ladakhis have met their needs, largely by practicing self-sufficient agrarian economy.

Traditionally, Ladakhis grew and consumed grains, cereals and vegetables. They constructed local channels to ferry the melted snow water for irrigating their farm lands and followed an equally finely-tuned social system of determining who gets water and when. Ladakhis believed in not wasting anything. They used animals waste as fuel and manure while human waste was used as manure.

These sustainable practices, which existed for hundreds of years, maintained a balance between the humans and the environment. Strong social relations among the community were the backbone for this sustainability. Their relationship was based on working as labourers on fields, sharing tools and animals, involvement of the group in decision making for every household and helping each other on all occasions.

However, as Ladakh is opening up to the world, its ancient and reliable agricultural system is facing disruption, and agriculture practices is taking a back seat as farmers have switched to conventional farming techniques. More people are attracted towards fast-growing sectors like tourism and tourism-related service sectors.

Switching to conventional from traditional farming has posed serious challenges such as soil degradation, water pollution, inferior crops, pest-infestation, food with less nutrition, health hazards, loss of local crop varieties, dependence on imported agro-chemicals, hybrid seeds and industrial food.

To overcome these challenges, there is a need to promote traditional farming in Ladakh. Traditional farming is similar to organic farming, but the concept of organic farming is broad. Organic agriculture combines tradition, innovation and science, benefiting the shared environment. As an ecological sustainable initiative, organic farming is needed to protect the environment and the land, to secure the livelihood of farmer families, and to produce more food. Organic farming not only leads to production of more food at a low cost, but is also healthier, nutritious and of better quality. It acts as a saviour for farmers and the environment, and could also be the solution for water crisis for irrigation as it uses one-tenth less water than conventional systems.

Farmer's Diary

• Small-scale Organic Farming:

Farmers practice traditional- organic and chemical-based farming- in Ladakh. The growing season in Ladakh is restricted to 3-4 months. Many farmers switch to chemical farming to maximise the yields and income during the short season. But the yields start to decline after two years as there is decrease in soil fertility. Farmers are thus forced to purchase agro-chemicals to sustain the same yield. Simultaneously, farmland is degraded, water is polluted and traditional crop varieties, adapted to Ladakh's unique bio-climate conditions, are lost.

Switching to organic farming could help in saving Ladakh's fragile farmland and natural environment, and also ensure the region's food security and rural livelihoods for the future. LEDeG encouraged the farmers to adopt organic farming through comprehensive training and awareness programmes, distribution and construction of essential needs, and also organised study tours to meet and learn from existing organic producers.

• Activities

LEDeG in collaboration with TATA Trusts has been working with 250 families in 8 villages in 3 blocks of Saspol, Khaltsi and Skurbuchan villages. As an insurance against conventional farming, LEDeG has pioneered the conservation of biodiversity in these villages and built a movement for the protection of small farmers through promotion of organic farming and fair trade to ensure healthy, diverse and safe food. LEDeG implemented various activities/ technologies to outline the importance of organic farming.

1. Irrigation Development:

Proper canals (Yura) were constructed at Skindiyang to irrigate 106 acres of cultivated land and 173 acres of farm land at Lehdoh. It eased the water supply for irrigating their farm lands. The canals benefited 110 households at Saspol village.

2. Technology to control weed:

Weed competes with the desired crops for nutrients and therefore the control over their growth becomes very important. LEDeG has come up with the following methods to counter their growth:

- **Mulching:** Mulch is usually, but not e xclusively, organic in nature. It helps in reducing weed growth. It is practiced at Lehdoh and Nurla.
- **Dutch hoe:** It is designed for pushing or pulling through the soil to cut the roots of the weeds just under the surface. A Dutch shoe has a sharp blade on each side and it can both forward and backward. It was displayed and put on sale for the local farmers.

3. Technology to reduce wastage after harvesting:

Traditionally, fruits are harvested by shaking the branches and letting the fruit fall to the ground. But it often results in damaged, bruised and dirty fruit. LEDeG has come up with solutions to get a high-quality fruit and to reduce the damage, such as:

- Harvesting Net: In this method, fruit is collected in a net held above the ground. Then the fruit is picked by hand and placed carefully in a harvesting basket. LEDeG has distributed around 500 harvesting nets at Saspol, Khaltsi, Lehdoh, Tia Temisgam, Alchi and Gera villages.
- Apple Harvester: This is an easy way to harvest apples even from top branches without damaging it. It also helps to restore the quality of the fruit. It was introduced to the general public at the FRL Mela.

4. Technology to efficiently dry the produce:

Transporting fresh fruits and vegetables to the cold arid regions of the country is a big challenge as they are remotely located and the products begin to deteriorate soon after they are picked. To avoid further damage of the produce, they should be preserved and the best method is to dry it. Drying the produce has been practiced for centuries and is still done in Ladakh.

The traditional practice involves drying the produce in the open sun, with the fruits and vegetables placed on the ground. The major disadvantage of traditional drying method is that during the drying process lots of dust, straw and hair stick to the fruits and vegetables, making the product unhygienic and unappealing. Moreover, a large space is required. To overcome the limitations of the traditional method, LEDeG has improved the method by proposing and adopting a more hygienic dryer, i.e. Solar Drier Cabinet.

On an individual level, the cabinet drier technology is made of a metallic/wooden frame which can be fabricated locally. The prototype covers an area of 1.2 square meter, consists of

Watermelon grown at Lehdoh by practicing Mulching

Distribution of Harvesting Net

Apple Harvester

Distribution of Drying trays

a multi-layer cabin (usually 11 cabins/ trays) covered with a U.V. stabilised polythene film with an air inlet at the base and outlet at the top. The structure can be made of either steel or wood depending on the availability of the raw materials. It is suitable for orchards with small holdings. Around 240 sets of drying trays were distributed at Saspol, Nurla and Tia-Temisgam villages.

5. Technology to addresses short-growing period

Vegetables can be grown only in summer in Ladakh. In winters, roads are blocked due to heavy snowfall and fresh vegetables are imported in airplanes. Thus, there is threefold increase in the price of vegetables in the market. To address this problem, LEDeG has introduced and assisted farmers to construct 'improved solar greenhouses' which can extend the growing season even during the peak winter season. Ten such greenhouses were constructed, including 9 at Saspol and 1 at Khaltsi village.

Green house at Saspol

6. Improved water flour-mill:

The water flour-mill is an indigenous machine used for grinding wheat, barley and peas. Rantak, the traditional water-mill of Ladakh, is driven by fast moving water and is used by the rural folk. Traditionally, it is made from locally available materials. LEDeG proposed and improved water flour-mill, wherein both the outer building as well as the inner parts of the mill was improved. The capacity of grinding was also increased. Five new mills were constructed at Tia, Nurla, Khaltse, Lehdoh and Skindiyang, which benefited 200 households.

SCALING UP AND SUSTAINING NUTRITION INTERVENTION

The people of Ladakh have comfortably handled their agricultural produce. Most fruits and vegetables were either eaten fresh or dried. But the growth in economy and population led to increase in demand, especially for imported products. Food producers have to respond to the consumer demands and produce what is desired. Paying attention to demands of consumers for quality, variety and packaging are important because demographic trends show growth in the convenience-oriented, health conscious and environmentally concerned sectors where price is not as important as quality.

Also, despite putting in a lot of efforts, farmers get the least return when it reaches the market. All these constraints of consumers and producers can be changed by adding value process. Value-added process means changing a raw product into something new which gives higher returns. Consumers' expectations are met through value addition, producers are able to generate high revenues, and there is increased number of items on the shelf and also increased shelf life of the products.

LEDeG have been fostering value-addition process since the beginning with simple approaches like modified harvesting method, sorting or upgrading the quality, packaging and marketing.

Till date, LEDeG has worked with various groups of farmers from different villages, and encouraged and trained them for adding value to their products. These products are also certified by FPO and FSSAI. The products developed under the training are:

1. Hygienic and graded dried apricots,
2. Apricot juice,
3. Apricot jam,
4. Graded dried sweet apricot kernel,
5. Apricot kernel oil (processed through cold process, as cold process restores all its nutrients unlike hot process or traditional way),
6. Seabuckthorn juice,
7. Hygienically dried fruits and vegetables,
8. Vegetable prickles

The products from the agriculture and food processing unit are available at our craft shop for the general public. These products are also exported to different parts of India.

Various value-added products by our Food Processing Unit:

S.No	Products	Quantity Brought from farmer	Final amount of product
1	Apricot	2648 kg	448 kg
2	Apricot kernel (sweet)	18 kg	18 kg
3	Apricot kernel oil (cold pressed)	24 kg	1.5 lts
4	Apricot kernel oil (hot pressed)	Left over from cold pressed	5 lts
5	Apricot Jam		100 bottles
6	Seabuckthorn Juice		25 bottles
7	Rajma	45 kg	45kg
8	Buck wheat	86 kg	86 kg
9	Roasted Barley	57 kg	57 kg
10	Local Pea	251 kg	251 kg

Agricultural products at LEDeG crafts shop

Eco-Fabric

Crafts shop at LEDeG Office

Decades ago, clothes were stitched to last and styles were timeless. Human ignorance has diminished the natural resources but people are now making an effort to change the way they are treating the planet. Clothes made from sustainable or eco-friendly fabrics are important components of the evolving wardrobe.

In Ladakh, eco-friendly fabrics are collected from animals, especially wool. Ladakhis use woolen materials which are manually processed to protect them from cold in winter.

LEDeG's aim is to empower the local artisans (mainly rural women) and to keep the traditional fiber art skill alive. Various training programmes on hand-carding, hand-spinning, hand-weaving and workshops on natural dyeing have been conducted for self-help groups (SHGs).

Currently, many of them are successfully running their own business. Tsering Dolma, who worked with LEDeG for about 20 years under the handicraft section, has now started her own organization called 'Ladakhi Rural Women's Enterprise (LRWE). Phunchok Angmo has started her own line of Ladakhi fabrics under the name Utpala.

All the products that are made by SHGs are brought to our craft shop to provide a market for their products. The profit from the craft shop is used for the benefit of the SHGs.

The wools produced in Ladakh are:

1. Pashmina (Lena)

Pashmina wool, popularly known as 'Cashmere Wool', derived its name from Pashmin which refers to the under fleece of the Himalayan Mountain Goat 'Changthangi Goat' (Capra Hircus). It is an extremely fine wool. Kashmiri weavers bought raw pashmina material from Ladakh and then processed it to make shawls.

2. Yak wool (Khullu)

This warm and lustrous wool is made from the coats of Yak, who have long shaggy hairand a thick woolen undercoat. Their hair is used for making wool.

3. Sheep wool (Baal)

It is the commonly used wool in Ladakh due to its availability and low cost. The best quality sheep wool is collected from lamb, locally called 'Yumboo'. It is soft and of very fine quality.

4. Camel Wool

A living remnant of the Silk Route, the wool of the double-hump camel (Bactrian camel) is rarely sheared and used due to its coarse quality.

Training Programmes

The main role for handicraft section is to conduct regular training of SHGs (Self Help Groups) on new designs, techniques, and improved technologies. This year LEDeG conducted few training programme on knitting techniques to some SHGs from Nubra Valley.

Knitting training given to women artisans from Nubra Valley, Group 1

Knitting training given to women artisans from Nubra Valley, Group 2

Renewable Energy

Passive Solar Rehabilitation project at Palam

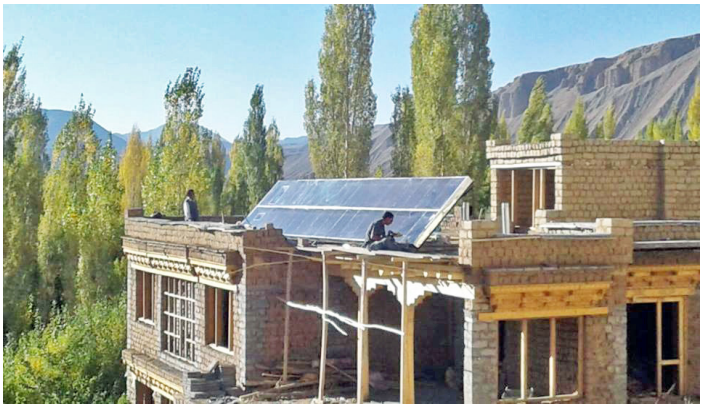
The people of Ladakh are exposed to temperature as low as -25 to -30 degrees Celsius for more than seven months every year. Traditional heating systems like bhukaris, in which wood and kerosene is used, is expensive and also emits carbon monoxide which is harmful for the body. Solar space heating systems, which use thermal energy from sun to heat up the space inside the building, would be an affordable, healthy and eco-friendly solution.
LEDeG pioneered in the introduction of renewable energy in Ladakh and has successfully constructed 600 passive solar houses and 15 active space houses in the region.
There are two types of solar space heating systems: passive and active.

Passive Solar Space heating:
Passive heating utilises the solar energy in the following manner:
1. The collector (transparent or translucent glazing sealed in a frame) let the solar radiation reach the absorber.
2. The absorber (solid surface usually dark-coloured) converts the radiation into heat.
3. The masonry storage medium (trombe wall) retains the heat.
4. The distribution component transfers the heat between the absorber and/or storage and the living space.
5. The control (insulation) reduces heat loss and increases solar radiation gain.

The other version of the passive solar space heating system is an attached greenhouse. This kind of space heating is more efficient that the previous one as it can trap the heat for a longer period.

Active Solar Space Heating:
Active solar heating systems use solar energy to heat a fluid and then transfer it directly to the interior space or to a storage system for later use. Active solar space heating systems use solar collectors to capture the sun's energy and use mechanical equipment such as pumps, fans, blowers to help with the collection, storage and distribution of heat throughout the house.
The solar collectors used in these systems use air as the fluid for capturing the thermal energy. In the most common setup, the collector draws cool air from the house, heats it up and then returns the now-heated air to the living space.

Many pilot initiatives took-off after the discovery of the potential of these systems. It was accepted by the public for domestic and community use. As a result, LEDeG successfully installed three active space heating systems. They were done at the following places:



1. Dr. Tashi Namgail, a renowned doctor, contacted LEDeG to install the system at his house in Nimoo village.

2. The community hall in Panamik village, Nubra, adopted the active solar space heating system in 2017.

3. Naro Guest House also accepted this technology.

SUCCESSFUL ACTIVITIES TILL NOW:

Solar power dispelling darkness in Ladakh region:

The electrification of rural households in Ladakh still remains a daunting task for the state government. It is financially not viable to connect these villages to the power grid due to isolation and distance and also owing to high transmission cost. De-centralized rural electrification is a viable option for villages as it is technically and financially feasible to maintain and to operate. LEDeG has provided solar power to some of these villages. A person from the community has been identified as plant operator for these mini grids, while the interval monitoring is done by a technician from LEDeG. On pilot basis, 5 villages were electrified with Solar Photo Voltaic (SPV) panels, off grid system.

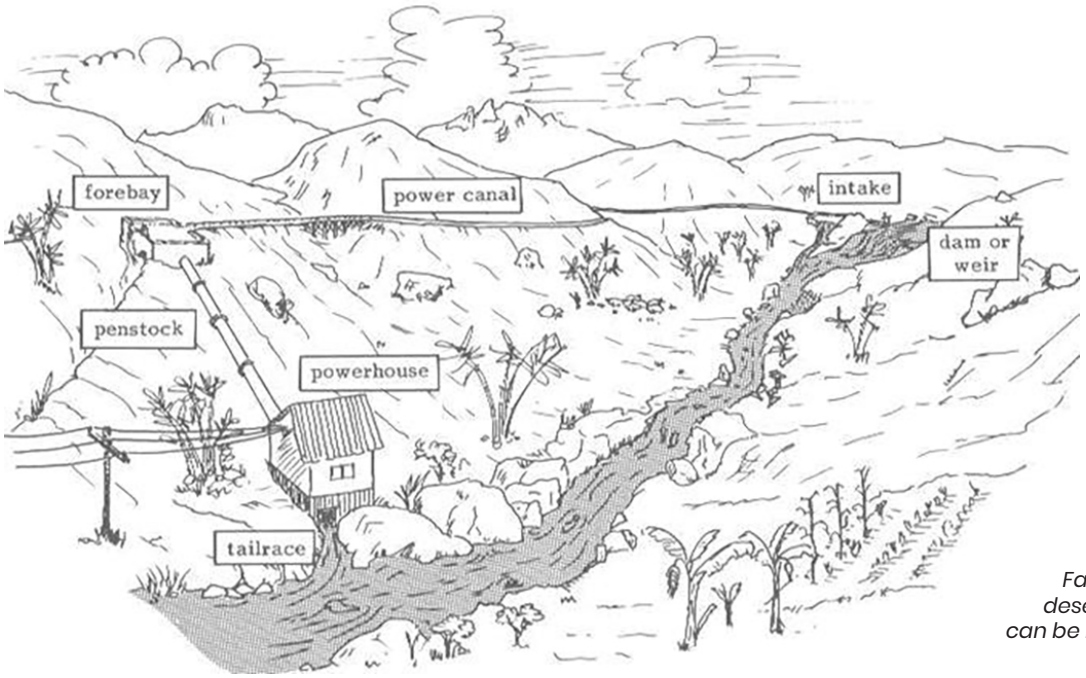
SPV off Grid Panels at Tangtse

Exemplary organic villages:

Agriculture is the major economic activity of India and Ladakh. Over the years, farmers have switched to unethical farming practices for high yields without envisioning the long-term consequences. LEDeG, under its various projects of sustainable development, adopted more than 100 farmers from Lehdoh, Kukshow, Pacharik and Skindyangto convert them entirely into an organic village and to facilitate their certification.

These farmers, under the IEC Program, were trained and supplied with essential needs. As a result, these villages can be called organic villages. Their products are certified under PGS, which certifies the authenticity of organic products.

Micro Hydropower units:



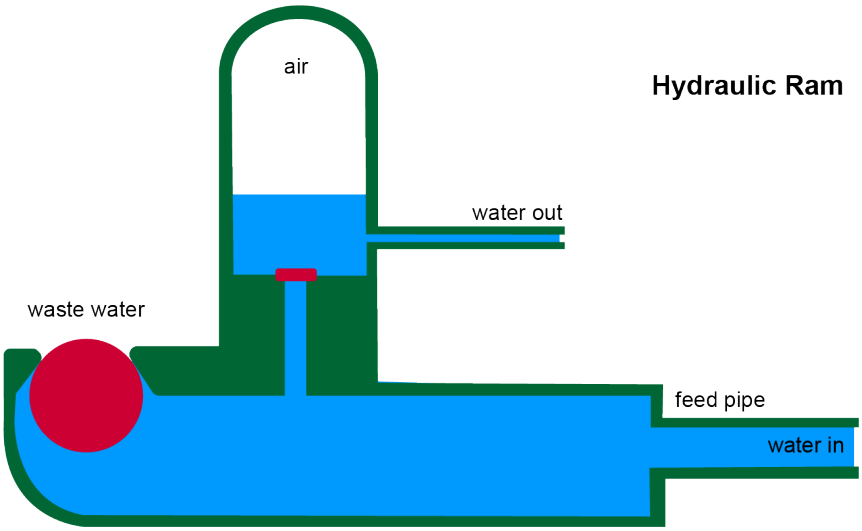
Falling water adds beauty even to a deserted land, but at the same time it can be harnessed to generate electricity.

Even in the 21stcentury, some people are still deprived of basic amenities like electricity. The need is more pronounced in Ladakh, especially villages located in remote corners, where life is not easy. People of Ladakh spend most of their time collecting wood for heating and lighting. To dispel the darkness from the lives of the villagers, LEDeG initiated installation of micro-hydro units in 1989.

LEDeG has been encouraging a decentralized method of production of energy based on renewable resources. Micro-hydro was a viable option for some villages and thus began a series of installation of micro-hydro units across Ladakh.Till date; LEDeG has installed 57 micro-hydro units in remote corners of the region.

Water-lifting technology: Hydraulic Ram (Hydram)

Worried about collecting water again! Now don't worry about falling down and breaking hands and legs on the path to the source of water, LEDeG have a solution for you.



In Ladakh, the water for irrigation and drinking is mostly fed throughmelting of snow from the glaciers. To plant more trees and cultivate lands, water is transported either manually or through conventional energy sources like generator. But the availability of water does not coincide with the needs of the farmers and the agriculture season. Even glaciers are receding at an alarming rate thereby leading to shortage of water for agricultural purposes.
LEDeG came up with a fascinating solution: Hydraulic Ram or Hydram, to overcome the shortage of water. Hydrams are effortlessly constructed pumps which are used to lift water to areas which are not covered by gravity-fed channels. It usesa part of the water-flow to generate energy and then lift the water to an elevated area. Hydram does not require conventional energy such as electricity or fossil fuels. The machine is robust, is remarkably efficient and requires minimum maintenance.
LEDeG has successfully implemented 63 Hydram pumps in Ladakh since 1993.

Artificial Glacier: Solution for water crisis

The people of Ladakh face water crisis. Chewang Norphel proposed the construction of an artificial glacier to overcome this problem. LEDeG replicated his idea and successfully constructed artificial glaciers at Alchi and Ayee villages.

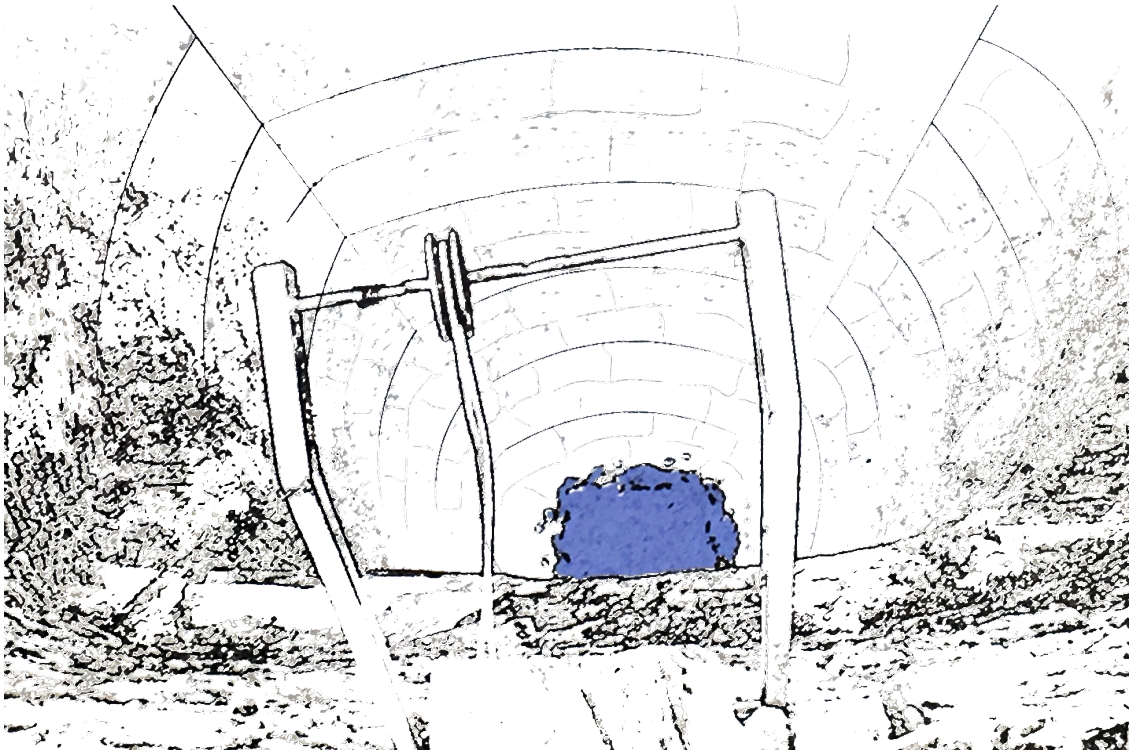
Artificial Glacier in Ayee Village

The artificial glacier is a detailed network of water channels and dams along the upper slope of a valley. In the months of November and December, water is diverted towards the sheltered side of the mountain, where it slows down and freeze (in a way that flowing water will not). Retaining walls are built to steady the flow of water and to facilitate its freezing in the form of steps. The entire mountain slope then gives the form of an artificial glacier, and every drop of water is trapped in the winter.

The artificial glacier is located at different altitudes so that the water melts at different times. The artificial glacier located closest to the village melts first and provides irrigation water at the sowing time in the months of April and May. As there is increase in temperature, the next glacier starts melting. This process of glaciers melting at different times continues and there is assured irrigation for the fields below.

Artificial Glacier in Alchi Village

In Focus : Our Water 2030



Ground Water Depleted and Contaminated

With growth in economy, the demand for natural resources like water, energy and food continues to increase, particularly in cities and urban areas. This pattern of over-consumption of resources has contributed significantly to climate and environmental change. Water security is emerging as an increasingly important and vital issue.
The suitable innovative and affordable solution for current conditions is the Water-Energy-Food (WEF) Nexus concept.

WEF Nexus acknowledges that a lot of water is needed to produce energy and same amount of energy is needed to supply water and to collect and treat wastewater. A similar amount of water and energy is then needed to produce food. Considering this concept, Technical University of Munich (TUM) and LEDeG under the "EU-India water co-operation" will implement a project titled "OurWater 2030".

In Focus : Ladakh Exchange

Immersive Experience programme

Ladakh Exchange promotes two-way educational exchange between the youth of Ladakh and those visiting Ladakh. Under this programme, workshops will be set up for travelers who want to learn the history and various problems posed due to development in Ladakh.
These exchanges take a variety of forms. Visitors with relevant environmental expertise are asked to give presentations in local schools or at LEDeG as part of the youth environmental education outreach programme. LEDeG outreach schools with presentations on health and environmental issues.

If sufficient funds are raised then students from Ladakh will be sent to Canada or a UK-based school for educational exchanges to learn about health, environmental and social problems, and how it relates to changes taking place in Ladakh.
Ladakh Exchange works in cooperation with Operation Groundswell, a Canadian travel company, who arrange for young people to visit Ladakh not just as tourists, but, as part of a programme to teach their participants about the environmental and social issues facing the region.

The Liveable Leh Project 2030 envisages to make Leh a more liveable, inclusive and resilient Himalayan city. The project will help the local government of Leh to overcome the gaps such as lack of technical knowledge, leadership and management abilities. This will help in better and effective management of natural resources of the region, and also in planning and implementing critical projects. The project will become a symbol of resilient and inclusive urban development that raises quality of life of all residents, including the urban poor.

THE MAIN OBJECTIVES OF THE LIVEABLE LEH PROJECT 2030 ARE:

- Develop capacities of LAHDC officials and strengthen institutions to conceptualize and develop Leh as an inclusive, liveable and resilient mountain city.
- Develop implementation plans to improve essential public services such as water and waste water management, solid waste management, green public spaces and transportation.
- Educate residents and the 270,000+ tourists on issues related to climate change.

DO WE KNOW WHAT TO DO?

Real or artificial Glaciers ?

Ladakh is a high-altitude desert with an annual rainfall of 50mm. The main source of water is snow–that which falls on the land and provides moisture for farming and pasture, and the snow from the glaciers that melts and feeds the streams.

Ladakh witness snowfall from October till March- the snowfall in December, January and February being the most important. But there has been scanty snowfall in recent years. A survey conducted by Groupe Énergies Renouvelables, Environnementet Solidarités (GERES) and Leh Nutrition Project (LNP) indicates that snowfall has decreased by 50% over the last 30 years. Likewise, there has been an increase in temperature by nearly 1°C in winter and nearly 0.50°C for summer since 1973.

As a result, Ladakh has been witnessing an increase in temperature and the precipitation (snowfall) has been erratic to say the least. This reality is adversely affecting our environment. Necessary measures are needed to counter the problem.

Concrete or Earth Blocks ?

The houses in Ladakh are made by piling up stones and sun-dried mud bricks. Rammed earth is used for plastering whereas wooden beams and floor joists are placed across the walls to support the above floors. Earth building was excessively constructed in Ladakh because it encourages environmental sustainability. It saves energy while creating the building materials and importing them to the building site, and also traps thermal heat energy.

However, traditional houses are being replaced by houses made of concrete blocks. The use of cemented bricks is becoming popular among the Ladakhis. Ironically, concrete blocks pose severe issues in Ladakh. These blocks are not only unsuitable for Ladakh, as these blocks are not insulation-friendly, but are also less cost effective and difficult to port. Keeping this in mind, LEDeG has established a Rural Building Center (RBC) in collaboration with Housing and Rural Development Corporation Ltd, Ministry of Rural Development, Government of India. The center promotes traditional building technologies using the locally available building materials with improvement in the construction material such as compressed earth blocks, stabilised and compact mud blocks.

In Focus : Do we know what to do ?

Artificial Glacier in Alchi Village

Compressed mud bricks at LEDeG's Rural Building Centre

Organic Farming in Nubra Valley supported by Future Earth

LEDeG & other local NGOs conducted “Organic Farmers Meet” in Nubra Valley (Disket), On 1st Nvember 2017

LEDeG organised one day seminar on Organic farming in different villages of Nubra Valley and the seminar wes addressed by Dr. Nordan Otzer, Ex. Director LEDeG

Training for Engineers on **Sewerage Waste Management:**

Two day training on basic sewerage waste management was organized in collaboration with Berman Overseas Research Development Agency (BORDA) and Hill Development Council for the Engineers on 7th & 8th November 2017 at NIELIT Centre, Leh. The training was attended by Engineers from Public Health Engineering Department, Leh Development Authority, Rural Development Department and Military Engineering Services. Two experts on Sewerage treatment Plant from BORDA conducted the training through their PowerPoint presentations on basics of waste water, different technologies, treatment practices, decentralized sewerage waste management system and adaption to Leh conditions etc. . The main objective of the training was to build the capacity and give an orientation to the Engineers, in view of ongoing mega project on centralized sewerage waste management project in Leh town by District Administration under the Leh beautification programme.

Meeting was conducted on the issue of Solid Waste Management and attended by many delegates

Meeting on **Solid Waste Management:**

LEDeG in Collaboration with BORDA and Hill Development Council convened a meeting with different stakeholders and concerned Department to discuss the solid waste management in Leh on 9th of Nov 2017 at DC conference hall, Leh. Three experts from Bangalore and Mysore were invited to exchange their success story of Mysore for being the cleanest city in India. No doubt Leh also being the cleanest town in J&K and open defecation free region declared by Swachh Survekshan of SBM but gradual growth in population and haphazard development might land us in heap of waste next to our door.

On an objective to play a proactive role by different stakeholders, a thorough discussion on current practices and issues was held. A timeline was also demarcated for future course of action under the chairmanship of Additional Deputy commissioner.

International Organic Trade Fair **BioFach 2017** supported by Future Earth

LEDeG team Participated in the Biofach India 2017 as an exhibitor, which was held at India Expo Mart, Greater Noida, U.P. (Delhi NCR), India. Wide range of organic product from ladakh region, like: Dried Apricot, Sweet apricot kernels, Apricot kernel oil, Buckwheat, Roasted barley, Seabuckthrown juice, Apricot jam, Dry Apples, Local Kidney beans, local Pea, Cow pea etc. were showcased by our team for the organic enthusiast. The expo was organized by Biofach India together with India organic. It is the biggest and only organic platform throughout India. Alongside the expo, Organic world congress of IFOAM Organic international was also took placed, which held every three year in different country and is the leading event for development of organic sector worldwide. Major organic producer and suppliers like Nature Bio food, Brahm Arpan, MRT Organic, Radico, Natureland Organic etc. were the main attraction of the expo.

UWH-STAKEHOLDER MEETING

Urban Water Health Nexus

A stakeholder meeting cum debate has been organized at Zen hotel under the theme "Urban water health food nexus" on 29th September 2017 at Zen hotel, Leh. Dignitaries, representatives of civil organization, Head of the concerned department were present at the meeting. This was the fourth stakeholder meeting in the row. The objective of the meeting was to make stakeholders aware of LEDeG's programme "Urban water health-II" and to draw out people perceptions on current development trend, upcoming centralized sewerage treatment plant and Groundwater contamination status etc. After the through discussion it was proposed and decided that a committee will form and recommend hill council to make a strict law to avoid further contamination and exploitation of groundwater.

Training on supervisory

Visit to Sweden

LEDeG's Executive Director, DR. Nordan Otzer and Agriculture Coordinator, Stanzin Chonjor participated the Training on supervisory visit to Sweden. All the partner organizations participated in this training event, which are providing support to SIDA for hosting their interns.

Annexure

Annexure I
Networks Linkages & partners.
Local partners:
Ladakh Autonomous Hill Development Council, Leh
Ladakh Autonomous Hill Development Council, Kargil

National partners:
TATA Trust
MNRE

International partners:
European Union
Bremen Overseas Research & Development Association (BORDA), Germany
Technical University of Munich (TUM), Germany
Future Earth

Annexure II
Auditors
S.S Pathania & Co.

Annuxure III
Banking partners
State Bank of India, Leh, Ladakh-194101
Jammu & Kashmir Bank, Leh, Ladakh-194101

The Staff

Dr. Nordan Otzer
Executive Director

Planning & Development

Rishav Paul	Coordinator
Prithvi Aravind	Consultant

Agriculture

Stanzin Chonjor Dawa	Coordinator
Sonam Phunchok	Assistant
Rigzin Gurmet	Assistnt

Water & Sanitation

Snehit Prakash	Coordinator FSM
Parth R Goel	Integrated Water - management Expert
Thinless Dorjey	Operational Assistant
Tamchos Gurmet	Senior Engineer
Tashi	Junior Engineer

Public Relations

Tashi Lundup	Documentation and Publication Expert
Tenzin Motup	Event Manager
Fariha Yousuf	Training and Monitoring Assistant
Smanla Dorje Nurboo	Communication Manager
Tundup Gyatso	Visibility Manager

Handicraft

Sonam Chorol	Coordinator
Rigzin Dolma	Assistant

Training

Ruchi Mathur	Coordinator

RBC & AT

Chemet Rigzin	Coordinator
Rigzin Dorjey	Manager
Tashi Norboo	AT Technician
Spalzes Angmo	Chowkidar

Hostel

Sonam Kunzes	Assistant
Jigmet Tseskit	Assistant
Tsewang Paldan	Chowkidar

Admin Office

Dachen Angmo	Accountant
Motup Tsering	Cashier
Eshey Chosket	Steno
Manzoor Hussain	Kargil incharge
Tseatn morup	Driver
Rigzien Yangdol	Chowkidar
Mohd. Ali	Chowkidar
Nissar Hussain	Part time Caretaker
Tsering Motup	Storekeeper
Tsering Deskit	Mess Assistant

LADAKH ECOLOGICAL DEVELOPMENT GROUP

Annual Report

Karzoo,
Leh - Ladakh, 194101
India
Tel. : 01982 - 253221, 252284

www.ledeg.org
mail@ledeg.org