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EXPERIENCES

Thanks to Thomas Mansouri for this article on the concept of solar greenhouse developed by the NGO GERES in India <http://geres.free.fr/>

Solar Greenhouses GERES

Objective :

The climate is much more severe in Ladakh than in Europe; the temperature can descend as far as -30°C during winter nights. Despite this, the region enjoys almost 300 days sunshine a year, which constitutes a formidable source of free energy.

Synthesis

Combining local know-how and passive solar architecture technique, GERES has developed a greenhouse suited to local conditions, which can be built from materials available on the spot (except for the transparent plastic cover)

You can look at the synthetic note of this programme :
Geres

Activities generating income by means of renewable energies

On the Website of the Fondation Ensemble
www.fondationensemble.org



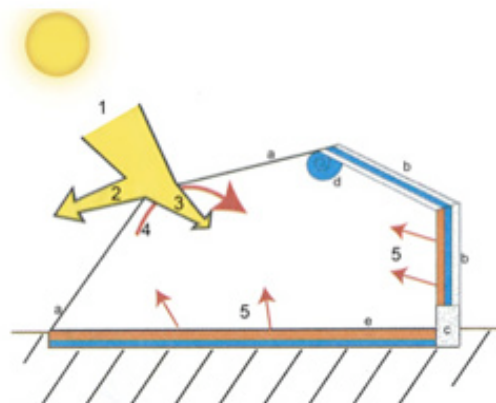
Methodology :

The south facing exposure, the angle of the transparent cover, the insulation of the walls (brick or earth, lined) and of the roof with straw – everything has been designed to store a maximum amount of solar energy during the day time and release it passively during the night, to avoid freezing, and withstand the abundant falls of snow.

To these basic principles should be added aeration techniques (insulated windows, on the roof and on the west wall) to avoid overheating: when the sun shines during the day, temperatures in the greenhouse can be in excess of 30°C , even in the middle of winter, which is not good for the vegetables or for water consumption (always a rare commodity in winter)

Energy flows:

1. Rays of sunshine
2. Losses through reflection off the transparent cover
3. Rays of sunshine entering the greenhouse
4. Natural heat diffusion in the greenhouse, through convection.
5. Heat is released from the floor and walls, protecting the plants from freezing overnight.



Structure:

- a. Transparent plastic cover
- b. Opaque walls, with built-in insulation and ventilation
- c. Foundation
- d. Roof structure, main beam
- e. Growing area