

Solar Safety Head Torch and Solar Safety Belt

Families of hill region are too much dependent on animal, as a source of finance and for their own family health. Thus for the family they cannot ignore the task of fetching. Generally the routes in the hilly region are remote, with all the difficulties because of the geographical conditions. The women in hills are mostly involved in collection of fodder so, they spend more of manual energy for collection of fodder. Fodder collection is quite a frequent household activity and you can notice every time group of women carrying heavy fodder loads on their backs or head and travelling long distances. Almost one woman from each household visits the forests twice a day to collect fodder and other forest produce. These women walk at least 1-2.5 km for harvesting fodder and during winters walk more than 3-4 km. During winters, local women leave their houses before sunrise and climb the rocks and mountains to collect dry grass and come back to their dwellings by afternoon. They carry a backload of more than 50-65 kg sometimes



Solar head torch



Solar Safty Belt

At highest peaks, transportation of kerosene or purchasing of kerosene for the women becomes difficult, and in this case solar lights are easy sources. Hill regions are identified as energy poor/poverty areas hence solar light can be recognized here. Besides this due to acute poverty some families cannot afford the expenditure of electricity. Hence importance of solar light to such areas where light poles cannot reach becomes important. But generally it is found that rural people are not aware of importance of solar light and its importance. Taking the above facts into consideration, the solar gadgets which are available in the market are not task oriented. In the present study action was planned to humanize the work of hill families by designing small and handy solar gadgets for lighting the path while fetching of fuel, fodder and water. During fetching they cannot carry lantern and torch because their both hands are busy. Considering this point the gadgets which were developed included **solar head torch** and **solar safety belt**.

Solar head torch: It can be charged with solar panel as well as electricity. It will be helpful and safe for hill family members during night while performing different activities like skilled activities and activities required close lighting. Besides this even children can also use it conveniently while close light is required for fine work. There is no need to carry this torch in their hands while performing outdoor activities and when the person is in motion as happens in case of solar lantern, torch and lamp. It has a special feature of anti-slip head band for fixing the head torch.

Solar safety belt: It can also be charged with solar panel as well as electricity. It will also be helpful and safe for hill families especially for women and girls while returning home after fetching of fodder and fuels during late evening and night hours. This does not involve the use of hands for carrying gadgets. It has a special feature of anti-slip adjustable band for fixing the safety belt.

Advantages:

1. Reduce injury and accident due to poor lighting condition in indoor and outdoor.
2. Saves money spent on kerosene oil.
3. Reduces air pollution.
4. The extra hours that the women get work at night, they got more time to spend with families. spend less on the kerosene, but more importantly, made money by doing skilled activities like stitching, knitting and embroidering etc.
5. They can start new income generating activities such as the poultry breeding farm in the village.