

Renewable Hubs

www.renewablehubs.com

1.0 The Concept of Renewable Hubs

Mission: To Educate, Inspire & Facilitate renewable energy projects or 'hubs' which accelerate the social & economic development of underprivileged communities in the developing world.

A renewable 'hub' describes a stand alone, easily reproducible renewable energy project that benefits a community both directly and indirectly through spin-off enterprises facilitated or inspired by the original hub. In the future we envisage many different types of renewable hub, but our flagship renewable hub which was successfully piloted in Sri-Lanka in 2008 focuses on the use of solar energy to provide free running water to underprivileged rural communities.

2.0 Background

Throughout the world there are many isolated rural communities that do not have easy or affordable access to running water. Communities who do have a nearby water source are forced either to spend many hours fetching water by hand or to rely on increasingly expensive (and polluting) diesel pumps to transfer water into reservoir tanks.

Villages are finding it increasingly difficult to meet the cost of running these water pumps. The alternative of fetching water by hand inevitably leads to wastage of many hours of productive man power that could be better used for agriculture, commerce and education within a community.

As the cost of fossil fuel increases, the problem of supplying affordable running water to isolated communities will intensify and stifle the social and economic development of some of the world's poorest communities.

3.0 Pilot Project: Solar Water Pumping Hub, Kaduruwewa Village, Sri-Lanka 2008

Through a donation to the *Helasarana* charity and under the guidance of Prof. Dharmadasa, an old and expensive diesel water pump in the Kurunegala district (part of Sri Lanka's Dry Zone) was replaced by a solar driven water pumping system. The pumping system provides about 500 Watts of power to pump water, free of charge, from a closed well to 125 village homes via a storage tank. The original infrastructure for the water supply system was built by the *World Vision* programme and villagers in the area.

Prior to the installation of the solar water pump, each village home paid approximately Rs 150 per month into a central village fund, which was then used to purchase diesel for

the original water pump. With the cost of fuel increasing, the cost of running the original pump was becoming prohibitively expensive for the villagers, many of whom make a very modest living through farming.

Since its installation in June 2008, the solar water pump has been a great success, providing free running water for over 125 homes. An unexpected benefit from this project has been that it has brought the villagers together and they have collectively made the decision to continue contributing what they would normally have paid for diesel into a new village managed fund to develop their local school through new equipment, books and scholarships.

Kurunegala Renewable Hub Quick Facts:

- Capital cost of solar powered water pumping system = c.£3000 Sterling.
- Number of homes provided with free running water = 125
- Annual saving for village = Rs 100,000 (c. £500 sterling)
- Storage tank capacity = 30,000 liters
- Lifespan of solar panels = 25 yrs
- Lifespan of water pump = >10 yrs
- Potential and actual spin-off benefits from the solar water-pumping hub:
 - A village fund from saved diesel money for purchasing equipment and providing scholarships to the local school.
 - Education of rural communities of the potential benefits and wider applications of renewable energy- an educational display is planned at the site of this first pump explaining what solar energy is, how it works and its wider applications as a resource for local villagers and schools.
 - Drip irrigation systems for local agriculture and commerce.
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4.0 Reproducibility

This pilot solar water pump has great potential for reproducibility both within Sri Lanka and throughout the developing world. It meets the criteria for a *renewable hub* because it is a stand alone project that can be installed in nearly any rural community, it provides free water for a large number of villagers through a sustainable, clean energy source and it has already spawned the first of many indirect benefits, namely a village fund from saved diesel money to develop a local school.

It is hoped that future funding of similar renewable hubs across the developing world will be through a mixture of individual altruism, regional and international companies as well as governmental and non-governmental organisations. In addition to the obvious humanitarian benefits of assisting with the social and economic development of some of the poorest rural communities in the world, organisations are encouraged to note the positive PR and publicity they will gain through their sponsorship of these hubs. The website www.renewablehubs.com will showcase individual case studies of successful renewable hubs as a way of educating and inspiring further projects and linking like minded individuals and organisations.

5.0 Off-setting Carbon Emissions

Companies and organisations that are looking to offset their carbon footprint to meet international targets may in the future be able to use their funding of these projects to offset their own carbon emissions.

6.0 Other Potential Renewable Hub Ideas

- Solar/wind powered drip irrigation systems for organic farming
- Solar/wind powered computer labs for schools
- Solar/ wind powered charging stations for battery powered agricultural equipment

Prof. I.M. Dharmadasa
Mr Mervyn Silva
Dr Krishan Deheragoda
Dr Asela Dharmadasa

Correspondence: E-mail: dharme@shu.ac.uk
Tel: +44 (0)114 225 6910