Small scale wind power development in Sri Lanka

Using wind for power generation is not very common in Sri Lanka. Presently a 3 MW wind power plant is in operation in operation in the South of Sri Lanka. Sri Lanka has had, however, less than a decade of experience of generating electricity from wind. A community based wind system of 2.5 kW was first commissioned in 1998 as a hybrid with a diesel genset and a biogas unit. This wind system was imported from Europe. By the year 2001, Sri Lanka commenced producing her own small wind generators with specialised technical and design inputs from local and European experts. These interventios are facilitated by Practical Application (ITDG)

Since then 50 small wind systems have been installed. As Sri Lanka enjoys two monsoons in addition to the local wind regime, there is a reasonable wind climate in most areas of the country.

Some improvements have been made in the recent past to the Practical Action's (ITDG) wind systems. Practical Action has carried out some research into improving charge controllers. The circuits relied on relays in the past have now been replaced with electronic components. Further, the problems with shearing of tail vanes are handled by hinging instead of riveting, which was another improvement which was made. Wind systems installed on the coast face corrosion problems. Galvanising them to reduce corrosion adds more costs to the overall system.

Some other recent interventions have been to introduce 3 more local designs. National Engineering Research and Development Centre of Sri Lanka has designed a 100W small wind system, which are being tested in collaboration with the Practical Action at one of Practical Action's(ITDG) small wind systems clusters. A technology transfer programme on the same design is in the pipeline, to be held in November and December in Sri Lanka. Another 2 designs have been developed by Practical Action in association with the Resource Management Associates led by Mr. Sunith Fernando, one of the pioneer designers of Small Wind Systems. One is a wind- solar 150W / 24W hybrid system while the other is a 250W system. These are being tested in one of the small wind systems clusters in Hambantota district. The fabrication and testing on this was held in Nepal and India with Practical Action – Nepal and the Indian Wind Energy Association. UNDP GEF SGP, SARI/Energy with Winrock International and Energy Conservation Fund of Sri Lanka has supported these recent interventions.

A major requirement for sustainability of any technology is the financing and after sales services despite a high quality product being provided. Revolving credit schemes in communities to partially finance the systems have proved to

work well. The current model, necessitates the users to purchase the battery and attend to the wiring aspects. The wind system with the inverter is provided as a grant cum loan to some selected communities on a pilot basis. The grant accounts to 65% of the costs and the loan is to be settled between 2-3 years. The loan repayment rentals are collected into the revolving fund to grant fresh loans to others. Monitoring and after sales service are supported by training local technicians to attend to these needs. However, the low business volumes and longer travel distances has predominantly barred the effectiveness of this approach.

The future of the stand alone domestic type electricity generation from small wind turbines displays a huge potential. To deal with fluctuating wind patterns hybriding with solar, wave, biogas and other forms of renewable energy sources are also being explored.

Reference Namiz Musafer - **Electricity from Small Wind Turbine Generators - ITDG Experience in Sri Lanka**