

## **Adaptation with Climate Change in Sri Lanka by Indigenous Rice Cultivation**

Climate change is changing the lifestyle and increasing hardship in rural areas of Sri Lanka. It is estimated that temperatures will increase here faster than the normal global warming rate, and that extreme climatic events such as heavier rainfall, cyclones, and heat waves will become more frequent.

Climate change effect will be felt most extremely in agriculture and food security, biodiversity, water and coastal resources, and human health. Rice production is projected to fall with a small temperature – consecutively leading to a decline in Sri Lanka's GDP of 0.2%, as paddy salinity increases with rising sea level. Increased evaporation will increase demand for irrigated water for rice production, further contributing to scarcity of water. Higher rainfall will silt up reservoirs and increase soil erosion.

Climate change will have a major impact on rural farmers of Sri Lanka and force extreme lifestyle changes. This will destroy livelihoods of them if they do not learn and be aware about climate change, get the support they need and take necessary steps to adjust- that is, so long as global greenhouse emission are rapidly reduced.

### **Experiment with Indigenous Rice Varieties in Sri Lanka**

For rice farmers in the Hambantota district, increased salinity in their paddy fields was a major problem, with yields dropping rapidly, by up to 50%. The situation worsened after the Indian Ocean tsunami in 2004, creating fresh water scarcity for irrigation.

Long-forgotten varieties of indigenous rice provided a local solution to this increasing soil salinity. In Sri Lanka, there are around 2,000 indigenous rice varieties and many of them are highly medicinal and nutritional properties and most of them are resistant to pests, diseases, and extreme drought conditions. Traditionally, these varieties were grown by natural inputs such as different organic manure rather than pesticides or chemical fertilizers.

A team of seventeen farmers participated in ten trials at Hambantota district – with the help of Practical Action and in association with the *National Federation of Traditional Seeds and Agri Resource* to see which varieties of rice could survive with salinity.

Farmers were given the option of 'variety selection' and requested to score the different rice varieties according to plant height, duration of crop, yield, and grain quality. The four rice varieties with the top scores were then promoted by the farmer organizations as hardy, high quality and saline-tolerant rice which are suitable for coastal rice cultivations.

This participatory approach enables marginalized farmers to cope with the changing conditions. Although indigenous rice does not produce the rice yields of hybrid types, farmers' profits remain high. Indigenous rice varieties only need organic manure and are bought at a higher price by the farmer federations – consumer demand for these uncommon types of rice is high.

Using organic fertilizer has also initiated to relieve the soil salinity problem. Applying indigenous knowledge and working with national farmer federations and farmer communities is important when assessing another options for adaptation. These alternatives consider community requirements and the challenges they face from drought, rising temperatures, and saline intrusion. The farmers of Sri Lanka are on the verge of abandoning their fields. The introduction of indigenous rice can give them and their fields a new lease of life.