**Success story of equipping stake holders of naturally organic saline prone sea coastal wetland ecosystem of Kerala through research and development interventions**

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Coastal wetlands of North Kerala which is popularly known as *Kaipad* has peculiar ecosystem with respect to soil fertility, biodiversity, biotic and abiotic stress tolerance systems. It is a saline prone and naturally organic rice production tract falling in Kozhikode, Kannur and Kasargod districts of Kerala state in 3808 hectors. The *Kaipad* system is critical to smallholder farmers in the highly populated coastal region of North Kerala where traditional methods of agriculture and fishery are prevalent. The *Kaipad* system of rice cultivation is an integrated organic farming system in which rice cultivation and aquaculture go together in coastal brackish water marshes which is rich in organic matter. The network of backwaters and estuaries serves as an inlet of sea water and causes salinity in the area. This ecosystem is rich in biodiversity with respect to flora and fauna.Mangroves which are seen on the fringes of back waters and estuaries are characteristic feature of *Kaipad* tracts. Mangroves provide breeding sites for fishes and prawn, and bind toxic chemicals and pollutants. Mangrove forests are valued for fish, shell fish, live stock fodder, fuel and building materials, local medicine, honey, and bees wax, chemicals or tanning leather, timber and wood.

Rice farming is unique in the *Kaipad* paddy tracks because, the lands are regularly flooded by sea water. Single-crop of rice is cultivated by small farmers in the low to medium saline phase of the monsoon based production cycle. During March and April each year, farmers prepare small mounds 2-3 feet high in the field. Paddy is sown when the early monsoon showers of May wash away some of the salt in the top layers of the soil. After sufficient growth of seedlings, the mounds are dismantled and seedlings in clefts are dispersed around the flattened mounds when the south west monsoon is active. Farming in the *Kaipad* system is purely in a natural way relying only on the monsoon and the sea tides. Neither chemical fertilizers nor plant protection chemicals are used. After planting the rice seedlings, there is no need of any cultural operations until harvest.

Out of more than 3808 hectors of total *Kaipad* fields at present available, 70- 80% of the traditional *Kaipad* fields are left fallow without cultivation. Once a field becomes fallow, the mangroves confined on fringes of *Kaipad* intrude in rice tract and make it permanently unfit for cultivation. If the menace of keeping *Kaipad* fallow continues it will result in the tragedy of loss of a precious ecosystem, which should not be allowed at any cost. The rice produce obtained from *Kaipad* is purely organic. Hence there is great potential for marketing organic rice in the domestic market as well as in the international market. As the farmers of this area are small and marginal farmers, there was limitation in exploiting the potential of this naturally blessed tract.

 Due to sustained intervention of Kerala Agricultural University of India through various research and development projects for a period of 22 years, this tract is now having five saline tolerant high yielding organic varieties christened as ‘Ezhome -1’, ‘Ezhome -2’, ‘Ezhome -3’, ‘Ezhome -4’, and ‘Mithila’ which are the first of its kind. Formed stake holders’ society in 2010 named ‘Malabar Kaipad Farmers’ Society’ having area of jurisdiction three districts where Kaipad exists, namely Kannur, Kasaragod and Kozhikode. There after secured Geographical Indication tag for Kaipad rice, the unique nutritionally rich product in 2014.Later strengthened the stake holders’ society forming Kaipad agency, KADS at government level and restructuring the society with strong net work system having four independent regional societies for each district and 52 panchayath level samithies. Non mechanization of this marshy tract was another menace which was achieved partially. Started a production, processing and marketing centre for Kaipad rice, and Standardized four value added products from GI tagged Kaipad rice and started domestic and export marketing through the stakeholders’ society. Marketing through Amazon also materialised recently. The stake holders’ society recently became farmer producer company. A research and development centre for organic wetland ecosystem is in the pipe line.