Characterizing and Conserving Paddy Land Races (CACPLR)

Objective: Cultivate and conserve genetic purity of more than 150 paddy landraces (indigenous rice varieties).

Background: The so called high yielding hybrid rice varieties introduced as a part of Green revolution gradually displaced native paddy varieties from our markets. The ever increasing input (Fertilisers, herbicides and pesticides) cost for the hybrid rice cultivation made paddy cultivation very less remunerative. This impacted the farmer financially as well as poisoned the food served on our plate. The loss of crop diversity also resulted in loss of nutrients in our food intake. The scientific community is taking the destruction one step further by introducing fortification of rice using genetic engineering.

The only means to come out of this vicious cycle is to go back to our roots. To do so, we should be cultivating our paddy landraces that grow naturally without requiring synthetic off farm inputs and put them back in our markets. Availability of genetically pure seeds of those landraces plays a vital role here.

A few farmers from Tamil Nadu were handpicked based on their credentials in paddy conservation and were provided with an opportunity to train with Dr. Debal Deb at his farm – Basudha located in Odisha. He is the founder of the rice seed banks Vrihi and Basudha. He was recently honoured with the Kirloskar Vasundhara Sanman for his contribution to the fields of ecology, agriculture and preservation of a large number of traditional crop varieties

Basudha (= 'Earth Mother' in Bengali) is a 1.7 acre farmland, on rent in a tribal village, surrounded by forests and hills in Bissam Cuttack block, Rayagada district of southern Odisha. A small farm house can accommodate visiting activists, research students and farmers. It was established by Dr. Debal Deb to conserve vanishing rice varieties; encourage, demonstrate and support for organic farming and traditional methods of multiple cropping; and preserve and develop local knowledge of biodiversity and its uses. Today he conserves more than 1400 varieties of paddy land races from India and neighbouring countries at Basudha meticulously studying and recording their genetic characters every season they are cultivated.

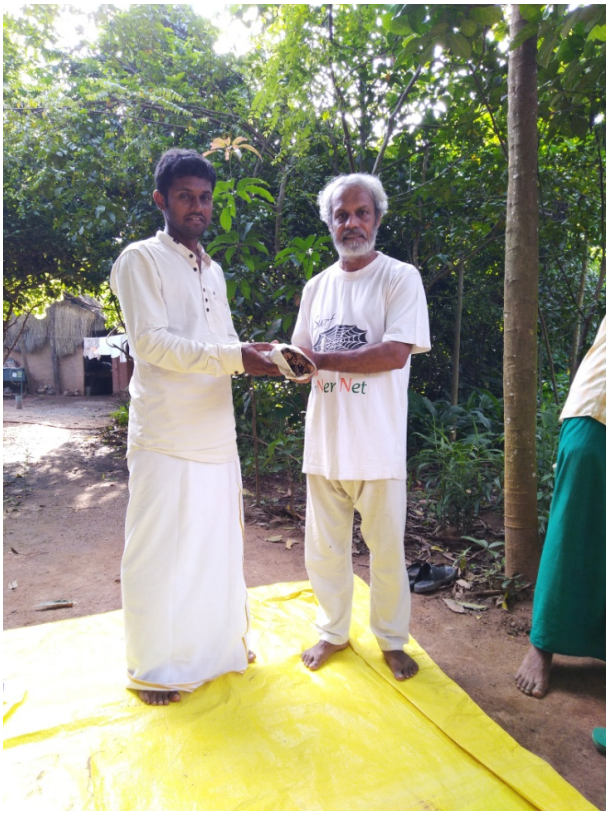
Ongoing efforts: Some of the trained farmers who also belong to Thondaimandalam foundation had sown, characterized, harvested and conserved ~ 150 paddy land races in the recently concluded paddy season. Major portion of these seeds were received from Dr.Debal Deb. Rest (TN varieties) were collected from local farmers. Those farmers who took part in this effort include.

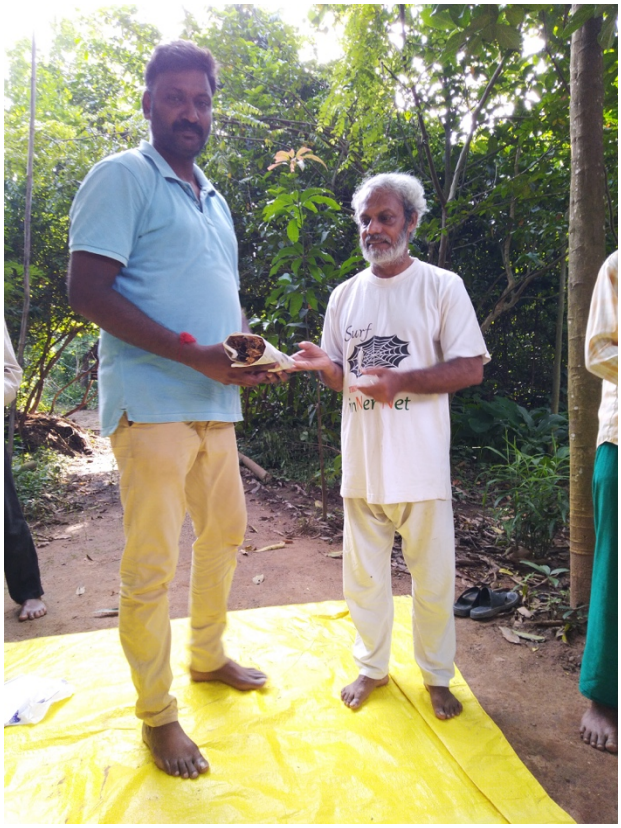
- ***Ganapathi Tamilselvan***, a natural farmer from Thiruputkuzhi, Kanchipuram district. He cultivated his varieties at a leased farm land in Cheyyar.
- ***Himakiran*****,** a natural farmer from Komakkambedu, Tiruvallur district; cultivation wad done at Kandanpalayam, Ponneri, Tiruvallur District.
- ***Rekha Ramu & Parthasarathy VM*****,** natural farmers - at their native village – Pandeswaram, Tiruvallur district.
- ***Mahesh & Sujatha*****,** natural farmers at Chinna Babu Samudram, Vizhupuram district

This was possible only because of extraordinary dedication of time by these farmers giving this effort the utmost priority.

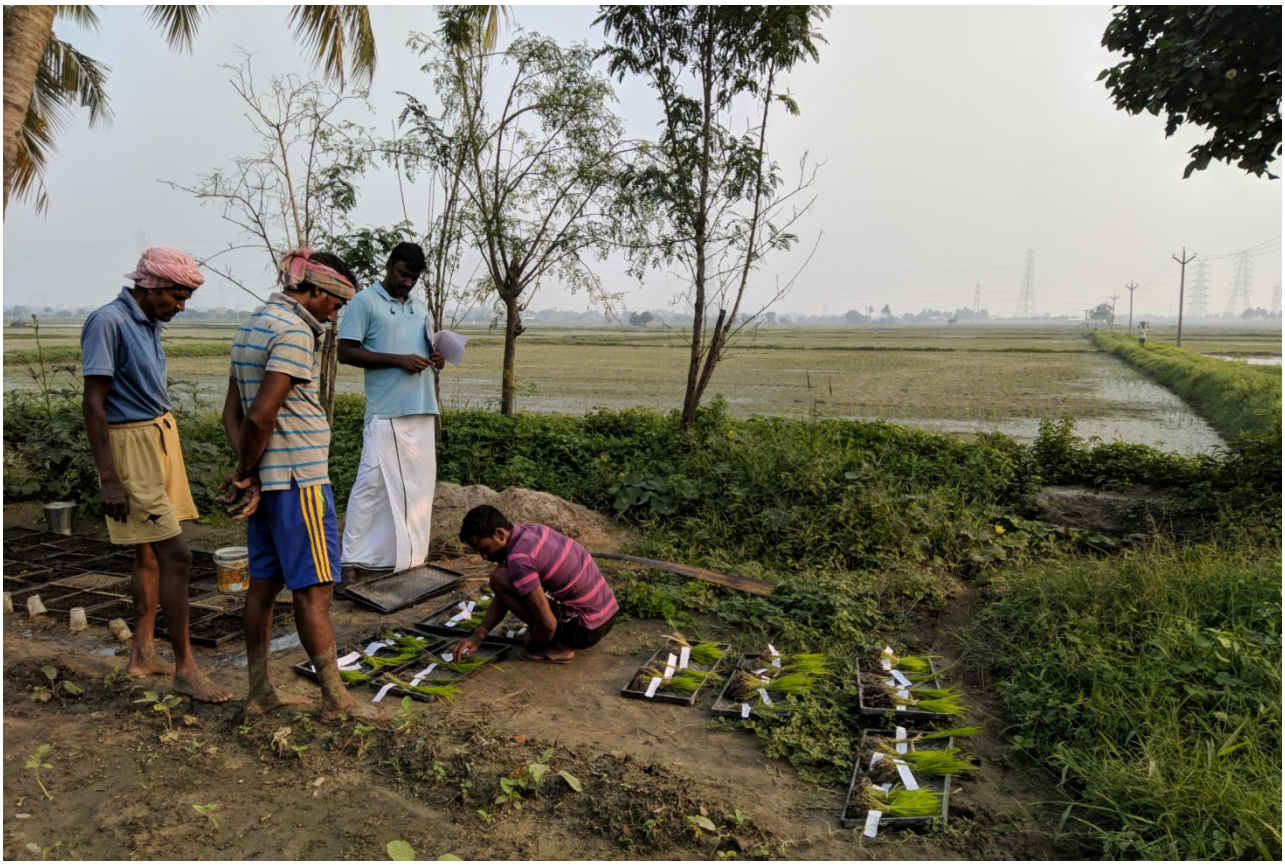
In pictures: Paddy landrace conservation training and efforts

Aug, 2019, a batch of farmers from Tamil Nadu attending training at Dr. Debal Deb's Basudha, Odisha. These farmers underwent multiple rounds of hands on training by Dr. Debal Deb



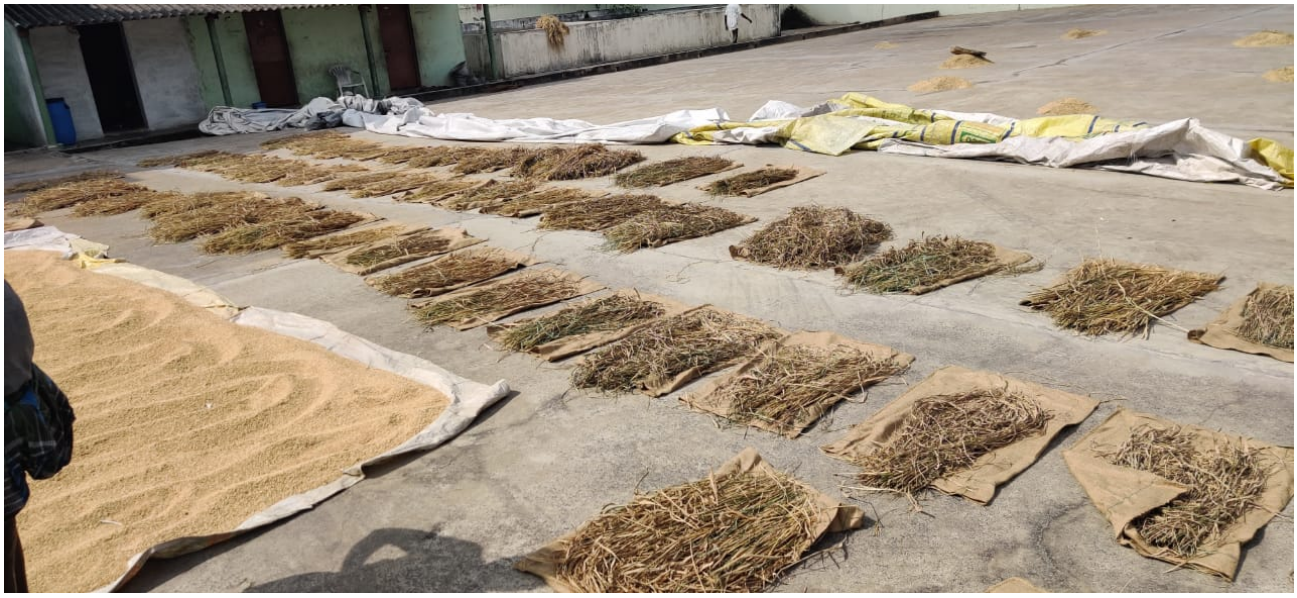


Aug- 2019: Receiving Seeds of Paddy Landraces from Dr. Debal Deb.



Sep-2019: Paddy seedlings sorted for transplantation at the farm in Ponneri, Tamil Nadu.

Dec-2019: Characterization of paddy land races throughout the crop lifecycle.



*Jan-2019***:** Drying, sorting, packing & labelling of harvested paddy land races.

Planned approach & Funding required:

Thondaimandalam foundation (TF) aims to set up multiple paddy land race characterization & conservation centres throughout Tamilnadu which would be able to carry out these activities sustainably. This pilot project (Second season of cultivation) is to establish and run this initiative at three villages listed below.

- Kandanpalayam, Minjur Block, Tiruvallur District
- Thiruputkuzhi, Kanchipuram Block, Kanchipuram District.
- Chinna Babu Samudram, Kandamangalam Block, Villuppuram District
- Pandeswaram, Villivakkam Block, Tiruvallur District

The plan to cultivate these crops in four different locations is done with an objective to improve resilience of these land races especially from natural disasters destroying crops. As a part of this project, skilled resources will be deployed at first two villages (one each). They will be responsible for managing and overseeing the crop lifecycle from sowing to harvesting. Their primary responsibility will be studying and recording their genetic characters of these landraces throughout their lifecycle and aid in conservation of their genetic purity. Their remuneration and other miscellaneous administrative expenses would be borne by Thondaimandalam Foundation which accounts to Rs. 20000 per month and Rs 2,40,000 annually.

Software solution:

Currently the process of characterization involves taking printed forms to the field, noting the character readings by hand, later typing them into an excel sheet and sharing them with others on emails / other media sharing apps. Any updates done later are also required to be communicated as a different version. This process is cumbersome and error prone. Securely storing the handwritten copies and avoiding transcription errors when converting them to digital copies is the key challenge.

With a view to improve the efficiency of the characterization process as well as to ensure accuracy of the characterization data recorded, we envisioned a mobile cum web based software solution. The mobile application will help us to record character readings on a mobile phone and persist them in a cloud database whenever the mobile phone gets access to network. Data thus stored centrally in the cloud database can be retrieved on a web browser analysed & shared to peers and experts. This is expected to improve correctness of data as well as eliminate transactional overheads. The efforts thus saved can be repurposed to perform more technical analysis & cover more paddy land races in the upcoming cultivation season.