



Community Seed Bank at NICRA Village in Cachar District of Assam - A Concept Note

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According to Assam's Action Plan on Climate Change (SAPCC 2015-2020) the state falls within areas of greatest climate sensitivity, maximum vulnerability and lowest adaptive capacity. The draft report has flagged rise in ambient temperature, reduction in availability of water for irrigation, degrading soil health, erratic floods and droughts, emergence of new pests and pathogens as "threats" to rice production levels. The emerging trends of rainfall indicate a reduction in the number of rainy days but a spike in extreme rainfall days coupled with enhanced intensity. Total rainfall is projected to increase in most of the areas in the Assam in the future.

Nearly 0.4 million hectares of paddy is chronically flood prone and in some years, the flood swallows up about 1 million hectares in Assam. In addition, the hot humid climate of Assam favours pests and diseases. The pest scenario is further aggravated by intensive cultivation of susceptible modern HYVs, overlapping growing seasons, use of high doses of chemical fertilizers and injudicious use of plant protection chemicals. Wild rice types are disappearing very fast and collection of wild rice deserves priority. Biotechnological

tools will be helpful in conserving rice varieties.

According to Ministry of Agriculture's agricultural statistics for 2016-17, India produced 110.15 million tonnes of rice over 43.19 million hectares with a yield of 2550kg/hectare (Source: Annual Report 2017-18: DAC&FW, Ministry of Agriculture & Farmers Welfare, GOI). Rice is the most significant crop cultivated in North East India. Rice is cultivated in a wide range of agro-ecological situations in Assam: from the hill slopes of *Karbi Anglong* to drought-affected upland and rain-fed lowland of *Barak Valley* to very deep water conditions.

Among the traditional landraces '*Tulsi Sali*' is suitable for low land areas and it takes time to cook but it is good for hardworking people and alluding to its nutritional characteristics. '*Joha*' an aromatic variety that received the geographical indication (GI) tag last year, as well as stocks of exquisite black rice. *Kokua Bora*'s grains are red and are very tasty as parboiled rice. Some of the *Joha* rice varieties are at the cusp of extinction while other such as *Dumai*, *Murali* in Barak Valley is also threatened.

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Rice germplasm of the region should be thoroughly evaluated to seek out sources of resistance before they are wiped out by ravages of nature and human interventions. Despite their low-yield potential, these cultivars are grown for their high market and social values. And they are important reservoirs of valuable traits. The germplasm collections from this region could serve as valuable resources in breeding for abiotic stress tolerance, grain yield and cooking/eating quality.

NICRA project is running at two flood prone villages namely: *Salchapra* and *Purandarpur* in Cachar district of Barak Valley. The main climate vulnerability in the NICRA village is recurrent flood. The period of March-April is characterized by low and erratic rainfall with occasional hailstorm. The period from May to September is characterized by high rainfall with apprehension of flood. Although total annual rainfall is adequate, the distribution is not uniform and about 56% of the total rainfall is received during June to August. The intensity and distribution of rainfall during the pre monsoon (March-May) and monsoon (June-August) periods are the chief determinants of area coverage and productivity of rice in the village. Early onset of pre monsoon is important for timely sowing and planting of *ahu* rice but growing of *ahu* rice is reducing drastically due to lack of irrigation in the village. Heavy rainfall during June-August frequently damages *sali* rice.

Traditionally, farmers are mainly growing *Kali Jeera*, *Sawrna Masuri*, *Gandhi Birain*, *Lati Birain*, *Bakul Joha*, *Kola Joha*, *Aghoni Bora*, *Black Rice*, *Dumai*, *Murali*, *Ranjit* etc. rice variety in this district. To overcome the climate vulnerabilities, flood tolerant varieties such as *Ranjit sub-1*, *Bahadur sub-1* and *Swarna sub-1* has been introduced in the village. Such varieties can tolerate submerge conditions up to 15 days. To encounter the flash flood situation growing short duration (90-100 days) rice variety, *Dishang* has been introduced which can be grown in post flood situation as *Sali* paddy.

Community seed banks are mainly informal institutions, locally governed and managed, whose core function is to preserve seeds for local use during the season. The farmers who run community seed banks handle major and minor crops, as well as neglected and underutilized species. They are sometimes producing in small quantities seed and storing hundreds of kg. In NICRA villages, farmers are preserving their seed of their own in house during the season and use the same seed for next cropping season. They also exchange their seed with neighboring farmers and villages during the flood as well as normal season. There is no concept of saving seed as community basis. Sometimes they exchange their seed with money or any other pulses or cereal seeds. The seed bank concept is not popular among the farming community of Cachar. They are mainly dependent on their own seed or collection of certified flood resilient seed varieties from KVK Cachar. Keeping in view of climate vulnerability, KVK Cachar is regularly producing *submergence tolerance* flood resilient rice variety *Ranjit Sub-1*, *Swarna Sub-1* and *Bahadur Sub-1*. Long duration flood resilient rice variety *Gitesh*, *Prafulla* are also produced for community nursery. Deep water rice *Panindra* and other submergence tolerance flood resilient rice variety, *Jalashree*, *Jalkuwari* etc. are produced in the experimental plot as well as in the farmers' field. KVK Cachar also producing short duration (90-100days) rice variety; *Disang*, *Luit* and *Prafulla* for post flood situation (flash flood). Seed production also done under Technology showcasing programme of RKVY and BGREI project Assam Agricultural University, Jorhat. Farmers' crop variety seed registration and providing royalty to the individual farmer as well as to the community has been taken up by KVK Cachar under PPV & FRA, GOI. Seed produced under technology showcasing programme are for normal season seed which cannot be used for contingency measure during flood or dry season. Normal season rice is mainly, *Ranjit*, *Swarna Masuri*

and *Sahabagi* (dry season rice). Seed produced in normal season are also kept by the farmers and sold to Food Corporation of India at MSP rate. These seed if produced more, cannot be sold as *contingency seed*. *Climate resilient seed* may be produced at such a quantity so that it can be used for contingency measure only. After the introduction of seed bank concept by the NICRA project, farmers become little aware to preserve their seed on community basis. But NICRA farmers are facing problem in keeping their *climate resilient seed* at one place as nobody is interested to spare space for *Community Godown* and most of the Farmers are interested to keep their seed in their own houses. Community concept of sharing seed sometimes creates controversy among the members. Some dominant members always take the advantage of it which creates adverse effect on belongingness of community feeling.

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