April 2014

Development Matters

Monthly Development update from DHAN Collective

Study

Uncultivated Edible Greens

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From the Editors' Desk

Dear Readers,

Greetings from DHAN Foundation.

Nature provides ample opportunities to meet our food and nutritional needs. This issue carries an interesting research article 'Uncultivated edible greens' which identified the edible greens that grows naturally in selected sites and how they can contribute to food security needs of the poor. With the back ground as Thane cyclone an article 'Role of People institutions in Disaster risk reduction' speaks on how community participation can contribute to disaster risk reduction. How a federation of women selp group in Semmiliguda contributed to improve cultivation and consumption of small millets apart from adoption of participatory research trials and improved packagal practises is presented in another article ' Women run federation promotes small millets". In the leader in focus brings out the contribution of Ms.Pachaiammal for development of women members in Ponammapettai vattara Kalanjiam in Salem district, Tamilnadu. An article by Mr.T.Dhanabalan analysis the scope for market linkages that exist with people institutions promoted by DHAN Foundation.

The readers are welcome to give their suggestions and feedbacks on the articles featured in the development matters. They can send their mails to *dhancdc@dhan.org*

Happy reading!

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Uncultivated Edible Greens

Karthikeyan. M, Salome Yesudas & Sathya *

Introduction

Food and nutritional security continues to be a daily challenge for about one billion people around the world. India too is reeling under massive under nutrition issues with around half of the pre-school children suffering from undernutrition. Micronutrient deficiencies are also widespread with more than half the women and children suffering from anemia and suboptimal reduction in Vitamin-A deficiency and iodine deficiency disorders (IDD) (Government of India). This is in spite of the significant growth of the economy in the recent past, increase in food production and provision of food through PDS and other supplementary food programs. There is urgency to address these food and nutrition security issues through additional ways. One such avenue that has potential to address the nutritional insecurity issues is increased utilization of Neglected and underutilized species (NUS). Small millets are an important part of NUS and they offer better nutrition than commonly consumed rice and wheat, in terms of various micronutrients (vitamin B, calcium, iron and sulfur), high dietary fiber and low glycemic index. Small millets are valued for their preventive and curative health properties (Varma & Patel, 2013; Yenagi and Mannurmath, 2013). They are also known for their water stress tolerance, which makes them suitable for rainfed agricultural systems threatened by climate change. Small millet cropping systems (SMCS) offer food security, fodder security and income security to the cultivating households. Besides these advantages small millet farms accommodate many nutritious uncultivated greens. Not much focus is given for understanding the contribution of uncultivated greens in the small millet farms to the food and nutrition security at the community level and for strengthening the same.

A study on uncultivated greens in association with small millets was taken up in three sites falling in different agroclimatic regions of Tamil Nadu, India, as UCGs are integral part of the Small Millet Cropping Systems. The study was carried out with the objectives of documenting UCGs from the project sites with the focus on those from in and around small millet farms, documenting recipes of uncultivated greens, understanding the trend in consumption of uncultivated greens and understanding knowledge transmission related to UCG across generations. The methods followed, and the results and insights from the study are shared below.

Methodology

In the study, the word "uncultivated" is used in a more general way to denote any of the following three categories- 1) The greens from land that are not cultivated such as plant, creeper, etc., 2) The greens that are not cultivated but are available as per partner crop in a cultivated field, and 3) The greens that are available from cultivated plants, but the product was not the explicit objective of the cultivation (Suresh Reddy & Salome, 1998). Participatory methods were used to understand the whole scenario of UCG in local food systems (see Table 1). To generate UCGs list and the list of recipes being in use, interviews of respondents using semi-structured questionnaire and focus group discussions were held with farmers of different age and gender. For semi-structured interview various age groups namely 20 – 30, 31-40, 41-50 and above 51 were considered. Gender and age variations were selected purposefully to get diverse knowledge from across section of the population. Identification of UCGs was done through transect walk and systematic collection of plant sample was also carried to prepare a herbarium of all edible UCGs besides photo documentation. Matrix analysis and seasonality study was done to get the community perception on medicinal values, other special features of uncultivated greens and the months in which the UCGs are available. Timeline and trend analysis of utilization of UCGs was also done. Formal and informal talks helped a lot to document the merits of UCGs perceived by the local community. During repeated visits to the study site further key informant interviews were held with old-age persons and with women, who were skilled in the use of uncultivated greens. Recipe contest was conducted for documenting the rich knowledge of women on recipes of UCGs and their utilization. In the end of the study, validation of results was done by sharing the study results with the

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groups of local community members and the results were accordingly refined. From the existing data sources, the botanical name and nutrient composition of UCGs was sourced and documented. The botanical names were confirmed with the help of taxonomist.

Table 1: Methodology

Themes studied	Methods
Generating list of UCGs and recipes	Semi-structured interviews and focus group discussions
Identification of UCGs	Transect walk, plant sample collection and photo documentation
Medicinal values and other special features of UCGs	Matrix analysis and key informant interview
Availability and consumption of UCF as per season	Seasonality mapping
Past and present situation of utilization of UCG	Timeline
Collection of recipes	Recipe contest and key informant interview
Checking the findings	Validation meeting

Location of the study

The field research was conducted in RESMISA project sites, Jawadhu hills (Tiruvannamalai district), Anchetty (Krishnagiri district) and Peraiyur (Madurai district) in Tamil Nadu state of India. Jawadhu Hills is a remote hilly site with tribal farmers. It is characterised by red loamy soil, high rainfall, small land holding size and limited adoption of technologies. Little and finger millets are the focus small millet crops here. Anchetty site is located in the Karnataka border and occupied

by non-tribal farmers. It is characterised by undulating land with red loamy soil, low rainfall, moderate land holding size and high adoption of technologies. Finger millet is the focus small millet crop here. In both of these locations the villages are surrounded by forests. Peraiyur site was different from the other two sites in various ways. It is a well connected site with non-tribal farmers. It is characterised by plain land with black soil, low rainfall, moderate land holding size and limited adoption of technologies. Barnyard and kodo millets are the focus small millet crops here. So the study attempted to analyse the UCGs in three different agro-climatic regions in Tamil Nadu with different kind of local communities. The UCGs were documented in 5 panchayats (Thagatti, Urigam, Kottaiyur, Madakkal & Anchetty) covering 26 villages in Anchetty, 4 panchayats (Kovilur, Kuttakarai, Melsilambadi & Nammiyampattu) covering 41 villages in Jawadhu hills and 13 villages in Peraiyur. The study was taken up during the rainy season in which time the UCGs were available in plenty.

Results and discussion

Presence and availability

As shown in the table 2, considerable number of UCGs was documented in the sites and majority of them (about 75 %) were sourced from small millet farms. Source of UCGs also reflect the agro-ecological condition of the sites- presence of forests in Anchetty and Jawadhu Hills. Majority of the UCGs belong to herb and creeper plant type. Considerably more number of UCGs was documented in Anchetty when compared to other two sites.

Uncultivated greens are actually weeds that grow in millet farms and some of them are considered more menacing than others as they reduce yield. Every rainy season they grow on their own along with the crops and available for 3-4 months starting from late June to December in the case of Anchetty and Jawadhu Hills, and September to November in Peraiyur. Seenga keerai

Table 2: Uncultivated greens documented in the sites- Source and Plant type

Site	No. of respondents	Total UCGs documented	Number of UCGs by source				Number of UCGs by plant type			
			Millet farm	Neigh-bourhood	Water bodies	Forest	Herb	Creeper	Shrub	Trees
Peraiyur	92	31	26	4	1		15	12	1	3
Jawadhu Hills	157	27	20	1	4	2	18	8	0	1
Anchetty	197	41	32	2	2	5	25	13	2	1

is available in May to April and October to November period and the people used to have its tender leaves only. Manathakkali and Ponnanganni are available throughout the year. Besides the farm, many UCGs, including some thorny plants, also grow on hedges. In most of the UCGs, the edible part is leaf and stems; in some cases fruits (Eg. Manathakkali and Kara) and roots (Eg. Nerinji) are also edible. The names of some of the UCGs vary across the sites. UCGs are accessible to all the families in the local area, including the landless.

UCG recipes in vogue

Uncultivated greens are cooked in simple ways, involving less work. The study found that nine kinds of recipes are in practice (See Table 3). Some of the recipes are location specific and others are common across the sites. Cooking with milk and tamarind and consuming as soup was observed only in Anchetty. In Anchetty, common recipes are pal kulambu, kulambu and poriyal. Rare recipes are dhosa and roti, in which UCGs are used as ingredient. In Jawadhu hills, common recipes are kulampu and poriyal, and rare recipes are dhosa, roti and little millet keera rice. In Peraiyur, common recipes are kulampu, kootu and poriyal, and rare recipes are vada, adai, chatny, poriyal with blood of goat and Dhosa.

The UCG recipes go well with small millet main dish. Muddhe (boiled finger millet flour made into balls), roti (finger millet handmade rotis baked on pan), cooked rice, porridge or whatever may be the cooked form of the millet, the UCGs go with them readily with taste and nutrition. In Anchetty finger millet being the staple crop, UCGs are regularly eaten with finger millet recipes like muddhe. In other two sites the situation is different as the staple crop is rice.

Table 3: Uncultivated greens recipes documented in the sites

S.No	Recipes	Short description	No. of UCGs
1	Kadayal/ Kulambu	UCGs are cooked and grind	23
2	Paal kulambu	Addition of milk to greens curry mentioned above; only found in Anchetty	15
3	Rasam (Uppu thanni)	Water used for boiling greens is separated and powdered spices are added; a kind of watery curry; only found in Anchetty	12
4	Puli kulambu	Cooked greensand ingredients grinded together before seasoning; used as curry; only found in Anchetty	4
5	Koottu	Greens with pulses without grinding; used as curry	16
6	Chatny	Greens seasoned with oil and grind; a side dish	1
7	Poriyal	Greens seasoned with oil; a side dish	54
8	Dosa, Vadai, Adai, Roti	Greens are added to flour/ batter	3
9	Keerai little millet rice	Greens are cooked with little millet rice; only found in Jawadhu Hills	3

Perception of health benefits

Community members' perception on various health attributes of UCGs was also documented in the study and few of them are shared below. It was reported in Jawadhu Hills that Pannai keerai (Celosia argentea) Kanan (Commelina benghalensis), Sadakuppi (Aurthum graveolus wild), Ponnanganni (Alternanthera sessilis), Manathakkali keerai (Solanum nigrum), Thavarai keerai (Cassia tora), Thoyya keerai (Digera arvensis), are cold foods and Seenga keerai is a hot food. So Seenga keerai (Acacia pennata) is not consumed by pregnant ladies. Thoyya keerai and Ponnaganni keerai are considered good for lactating women. Perandai (Vitis quadrangularis) is considered good for digestion. Ponnanganni keerai is considered good for eye sight, shining of skin and body cooling. Manathakkali is considered good for healing stomach ulcer. The excess consumption of Seenga keerai causes joint pain and gastric problem. Local traditional healers use UCGs in their medicine preparations.

Consumption of UCGs

Intensity of consumption varies from season to season, with more consumption during rainy season (2 to 4 days in a week), due to easy availability. The most favored UCGs include Pannai, Thoyya, Manathakkali, Ponnanganni, Mullu, Thiruvannamalai and Neermulli. Though considerable consumption of UCGs was observed in the three sites, declining trend was reported when compared to the earlier years. The reasons for decline in consumption varied across the locations. Consumption of UCGs from forest has come down in Anchetty due to less access. On the other hand consumption has come down in Peraiyur due to reduction in availability of UCGs from farms and decline in cultivation of small millets. In the case of Jawadhu hills, consumption of UCGs are being replaced by purchased vegetables and this trend is seen as a sign of social mobility - increase in social status. It was reported that children have less preference for UCG recipes.

Influence of age and gender on knowledge of UCGs

Knowledge about these UCGs is handed over to the next generation by the earlier generation as an oral tradition. Their food, nutrition and medicinal values were carefully handed over by observation. As the young, especially women, accompany elders in weeding, they observe the collection of these weeds for different uses, some for food, some for medicine and some for medicine to their animals. They also learn about recipes and various related nuances from their elders. The study revealed that in Anchetty, there is considerable difference in knowledge on UCGs between men and women with, women knowing (7.85 on an average) more UCGs than that of men (6.73). Similarly there is difference in knowledge on UCGs among the different age groups with "Above 51" age groups knowing more than their youngsters. In Jawadhu hills, these differences were not well expressed. Both in terms of gender and age group, there was no significant difference. This indicates the decline in transmission of knowledge across the generations in Anchetty and less evidence of such trend in Jawadhu Hills. On the other hand more number of UCGs was reported by individual respondent in Anchetty, than in Jawadhu Hills. The maximum and minimum number of UCGs reported by respondent was 22 & 3 in Anchetty and 14 & 2 in Jawadhu Hills.

Comparison of UCGs with cultivated greens

A comparison of nutritional profiles of the UCGs with cultivated and commonly consumed greens (Table 4) revealed that UCGs fare better as they have much higher values of nutrients, especially micronutrients. So they are good candidates for improving the nutritional security of local community.

Table 4: Comparison of nutritional profile of UCGs with commonly consumed cultivated greens

Greens	Fibre	Calcium	Iron	Vitamin - C
	(g/100g)	(mg/100g)		
Cultivated				
Siru keerai *(Amaranthes gangeticus)*	1	397	3.5	99
Arai keerai *(Amaranthes tristis)*	-	364	3.85	-
Pulichai keerai *(Hibiscus cannabinis)*	-	172	2.3	20
Pala keer *(Spinacia oleracea)*	0.6	73	1.1	28
Fenu greek *(Rigonella foenum)*	1.1	395	1.9	52
Uncultivated				
Pannai *(Celosia argentea)*	2.1	398	20.9	99.0
Thoyya *(Digera arvensis)*	8.8	3237	111.3	127.4
Manathakkali *(Solanum nigrum)*	2.4	367	7.1	257.7
Ponnanganni *(Alternanthera sessilis)*	2.6	510	16.7	17.0
Mullu *(Amaranthus spinosus)*	1.1	800	22.9	33.0
Neermulli *(Asteracantha longifolia)*	4.2	1641	49.9	-
Kuppa keerai *(Amaranthus viridis)*	6.1	330	18.7	178.0
Kelanelli *(Phyllanthus fraternus)*	4.2	767	59.4	1045.5
Thavarai *(Cassia tora)*	2.7	869	9.7	225.0
Sadakuppi *(Aurthum graveolus wild)*	2.4	412	26.6	219.7
Naagar *(Achyranthes aspera)*	3.3	417	12.5	31.8
Nerunji *(Tibulus terrestris)*	-	1550	9.2	41.0
Kattukodi *(Cocculus hirsutus)*	7.6	1152	10.7	232.2
Perandai *(Vitis quadrangularis)*	1.8	650	2.1	-

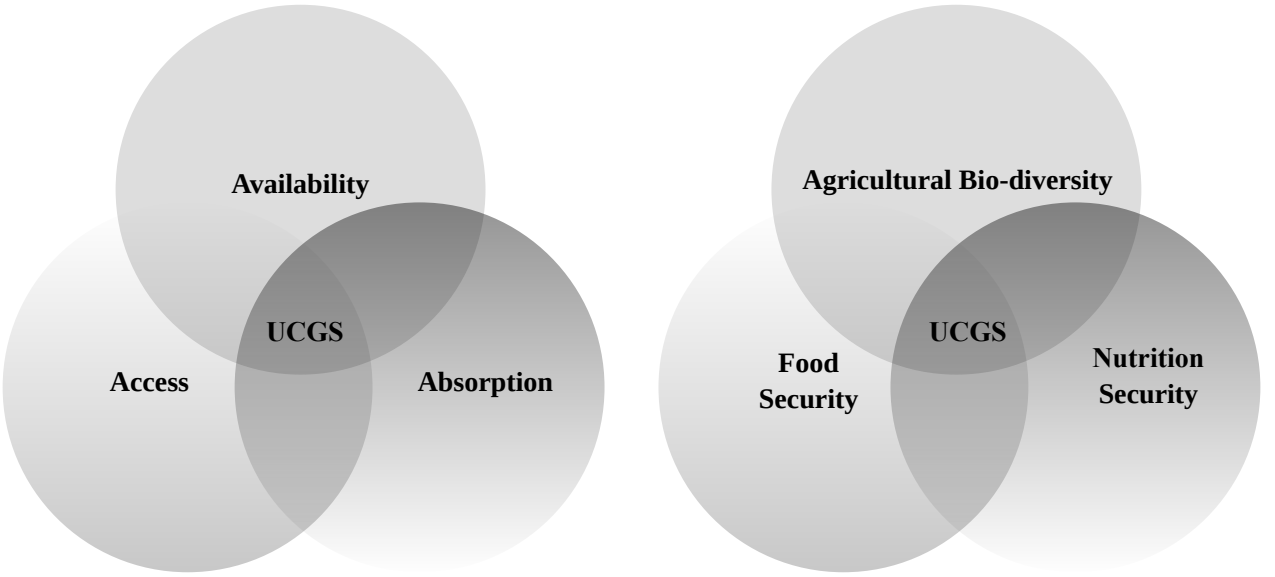
Source: 1) APFAMGS & FAO (2007), Nourishing Traditions: Local Greens.

2) Gopalan, C., Rama Sastri, B.V., Balasubramanian, S.C., Narasinga Rao, B.S., Deosthala, Y.G. & Pant, K.C. (2007), Nutritive values of Indian Foods, National Institute of Nutrition, Indian Council of Medical Research, Hyderabad.

Conclusion

The three aspects that underlie most conceptualizations of food and nutrition insecurity are 1) Availability – the physical availability of food stocks in desired quantities, 2) Access – determined by the bundle of entitlements, especially in terms of physical and economic access to food, and 3) Absorption – defined as the ability to biologically utilise the food consumed (MSSRF & WFP, 2008). UCGs are rich sources of iron and vitamin C and both have a vital role in red blood formation. They are also rich in calcium and phosphorus, other important twin micronutrients that helps in bone and teeth formation and also for many other important biological functions in the body. These UCGs offer fibre in plenty which is missing in modern diet. Fibre is a very important element for preventing constipation and certain types of cancers. Uncultivated greens as part of the local food systems are available in plenty and accessible relatively free of cost to all the members of the community, including the landless. It was reported by women respondents that whenever they need they just walk to the nearby field and hand pick their choice of UCGs and cook the recipe they want. Due to their richness in vitamins and minerals they help in absorption of nutrients from the accompanying energy giving bulk foods, whether it is rice, finger millet or other small millets. Thereby UCGs serve as a solution for various micronutrient issues plaguing all classes of society in the sites. So they fall in the intersection of three dimensions of food and nutrition security (see fig 1). As being part of agricultural biodiversity and by their role in food and nutrition security, they again fall in the intersection

Fig. 1: Role of UCGs in Food and Nutrition security



between agricultural biodiversity, food security and nutrition security.

In summary, SMCSs in addition to their produce provide many valuable UCGs to the site community. UCGs are freely available to all the local community members and are rich source of vitamins and minerals and play pivotal role in meeting the micronutrient requirements of the rural families in the sites. Moreover they contribute to better absorption of rich nutrients available in the small millets in the body. Given these benefits of UCGs, it is important to conserve and nurture them.

Specific efforts are also needed to counteract the declining trend in UCGs consumption by taking proactive steps to facilitate transmission of knowledge on UCGs to children and youngsters. Initiatives like recipe demonstration and educating school children through various communication tools are needed. Sustenance of UCGs in the future is very much linked to the sustenance of rainfed farming ecosystem in general and small millet farming in specific, since these UCGs come mainly from small millet farms and small millet cultivation is the base for their existence. This is another reinforcing reason for supporting the rainfed farming livelihoods and small millet cultivation. Further research is needed on nutritional composition of some of the UCGs for which the data is not available in the secondary sources and on bioavailability of combination of small millet and UCG foods.

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People Institutions on Disaster Risk Reduction – Experience of THANE Cyclone

Sivasubramanian P *

About the Cyclone

A depression formed over southeast Bay of Bengal in the evening of 25th December, 2011 and lay centered about 1000km southeast of Chennai. It gradually moved north-northwestwards and intensified into a deep depression in the early morning of 26th December, 2011 and into a cyclonic storm 'THANE' in the same midnight. It then moved west-northwestwards and intensified into a severe cyclonic storm in the afternoon and into a very severe cyclonic storm in the evening of 28th December, 2011. It then moved west-southwestwards and crossed north Tamil Nadu & Puducherry coast between Cuddalore and Puducherry within 0630 and 0730 hrs IST of 30th December, 2011 with a wind speed of 120-140 kmph. After landfall, the system rapidly weakened into a severe cyclonic storm over north coastal Tamil Nadu at 0830 hrs IST of 30th and into a deep depression around noon and into a depression in the same evening over the north Interior Tamil Nadu. It weakened further and lay as a well marked low pressure area over north Kerala and neighborhood in early morning of 31st December, 2011.

Impact of Thane Cyclone

The Thane cyclone, which crossed over the coastal district of Cuddalore and Pondicherry, on 26th of December 2011, caused unforeseen damages to the fishing and farming communities. The disaster claimed 47 lives and many of the people who lived in huts, where left stranded in streets, who got lodged in relief camps later. The age-old trees, which stood as wind barriers, were uprooted by the cyclone. Lakhs of trees, thousands of lampposts, hundreds of huts and tiled houses were damaged by the disaster. Even after a week period, electricity connection is not restored in the rural and part of urban areas.

The farming and fishing livelihoods were paralyzed and came to a standstill position. The worst affected are the poor and vulnerable households living in huts and tiled houses. Most of these households were ill-equipped to meet this disaster. Dismayed by the loss, poor households are in desperate need of support for recovery.

Damages to coastal farming system

Agriculture: Extensive damages were reported in coastal farms within 30km from the seashore. Standing crops like paddy, groundnut, onion and other

vegetable crops have been totally damaged. Most of the horticulture crops like cashew, coconut and casurina were destroyed by the cyclone. About 90 thousand hectares of land was damaged by the cyclone. Many of the livestock like birds, goats and cows have died.

Horticulture: Among the perennial horticultural crops, cashew and coconut plantations suffered the maximum damages. Many of the trees got uprooted and died. The casurina crop, which was cultivated in the coastal areas, was also damaged. It is notable that, many of the farmers were waiting to earn after investing in the horticulture tree crops and unfortunately, the damages have shattered their confidence. These farmers have to wait for the next three years to earn from horticulture activity, for which they need financial support.

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Livestock in the coastal areas: Apart from agriculture and horticulture, livestock activity is an important source of income for the agriculture labourers and marginal farmers. The cyclone that has hit the coast has also killed hundreds of livestock. Around 123 livestock have died.

Impact on Agriculture Labourers: The marginalised communities and landless poor households are engaged in labour works in the coastal area. The cyclone not only had impact on the landowner but also on the labourers who were entirely dependent on agriculture fields. Thousands of poor households have lost employment opportunities. Most of them are unskilled and presently these households are struggling for their basic needs. Notable fact is that, more than 60% of the workforce engaged in the labour work is women. The much-dreaded cyclone Thane damaged about 50% of the crop in Cuddalore district. The wind speed of the cyclone was measured to 120 – 140 km per hour, which uprooted trees and damaged the crops. Of the total cultivated 1,84,942 hectares nearly 90,752 hectares got damaged by the cyclone. Nearly 63,020 hectares of paddy got affected. The worst affected where the Cashew plantations. Of the 28,012 hectares of cashew, 14,800 hectares were affected and it will take many more years to revive these plantation.

Damages to fisheries sector

Fishing crafts like Fiber reinforced plastic boats (FRP boats), and launches were hit by the cyclone. In Cuddalore and Puducherry 320 fishing crafts were damaged by the cyclone. Many of the boats damaged are in such a condition that, it cannot be renovated. Nearly 220 fisher folks have lost gears of all types. Those gears were completely wiped and still they are missing. Fisher folks settled in the coastal area faced the worst damage due to cyclone.

The cyclone that struck the coastal community was a second shocker to them within 10 years. The damages caused by the tsunami disaster are still unforgettable to many of the households. Notable that, both these disasters has stricken the coastal districts on the fourth week of December.

Damages to coastal habitat

The houses that were located in the coastal blocks were crushed and devastated by the cyclone. The damages were huge in poorly developed areas, where the settlement of poor people was noticed. Flooding is noticed in the low lying areas. Roof of tiled houses got collapsed and huts were completely damaged. The affected households were lodged in relief camps, schools and neighbour houses. The cyclone has affected 5,584 houses of which 2,439 were completely damaged and 3,145 houses partially damaged in various blocks of Cuddalore and Puducherry district. Many of the huts and tiled houses were damaged by the fallen trees.

Damages to Infrastructures

Infrastructures of all kinds have been damaged too. The electricity poles, transformers etc were severely damaged and the entire villages cut off from power supply; Water supply system, water posts etc. Shops that existed in the villages were shattered; schools grievously hit. The complete recovery is a time taking process.

Status of Women and Children

They were the major victims. Traditionally women are responsible for taking care of household chores. In the post disaster context, with limited resources, poor women were struggling to meet the household needs. The struggle for food and water exits in the worst affected areas. The scope for outbreak of diseases like cholera is very high, and the children below the age of 5 will be the worst affected. Most of them are terrorized need counseling to return to the normal life.

Efforts of Government and Other Organisations

Preparedness with the government: Post-disaster, the government announced a compensation ₹ 150 crores for

the victims of the disasters. The total damage is expected to be around ₹ 2,000 crores. Every day meetings were organised by the district administration and funds were allocated based on the needs. Priority was given to fulfill the basic needs of the community such as supply of drinking water, food for people staying at common place. Damage assessments in the agriculture and horticulture fields were also done. Government of Tamil Nadu has announced a compensation of ₹ 5,000 for fully damaged houses, ₹ 2,500 for partially damaged houses. Government of Puducherry provides ₹ 2,000 for all ration card holders and ₹ 1,800 additional for registered fishermen. But the amount announced is not sufficient to restore the houses which are fully or partly damaged.

Efforts of DHAN Foundation

Staffs of DHAN Foundation, People institution leaders, and people staffs responded immediately after the disaster for facilitating relief and recovery work. The recovery works facilitated includes removal of fallen trees on the roadsides and houses, supporting people to recover their assets from damaged houses to common places, safeguarding old age people, community cooking, supplying drinking water, and assessing village level damages. The poor people, who are sick and in need of support, were sent to the nearby public health centers, The milk processing unit established by DHAN Foundation and run by the community supplied over 6000 liters of milk to the nearby villages after the disaster.

Efforts by corporate

The corporate industries at SIPCOT provided emergency support to the affected villagers. The industries are supplying drinking water from the bore wells and they have arranged vehicles to carry water to the affected villages. Ramco Cements arranged Tankers to supply water to villages, further they have provided relief materials such as grocery items to very few of the villagers. Petrol bulks and companies provided extension electricity services for charging mobile phones.

Efforts of Neighbours

The neighbours at villages supported the affected persons by providing food, providing bed sheets and space for sleep. In a village at Kullanchavadi, the president of the village prepared food with his own expenses and supplied to all the houses in the villages. Few landlords supply drinking water to the neighbours. People at concrete houses, big farmers, and economically well versed people provided space for people who lost their houses, provided food for others, supported in recovering damaged houses and other life of people and livelihood assets. Further affected people combined share their resources and fulfilling their basic needs. Rich people supports filling overhead tanks at villages through generators.

Other Relief Works

The government and many other voluntary organizations were engaged in the relief and restoration activities. Despite, the basic needs of the households in the remote villages were left unaddressed. As the household assets and money kept into the houses were damaged, victims are dependent on every single need. The emergency and short term needs of the households are stated below.

- Addressing the immediate basic needs of the victims such as food, groceries, and utensils for cooking, drinking water and health check-ups. These items were supplied to the homeless and families affected by the disaster.
- Water was ensured for the next 25 days in the disaster affected villages with the aid of water tankers.
- Repairing damages of the partly damaged houses and construction of new house for those who are homeless.
- Exclusive village level health camps to prevent outbreak of disease in 40 coastal villages were planned for individuals staying in the common

places.

- Providing veterinary services to the poor having milking animal and sheep as their livelihood asset.
- Repairing of boats and nets and recovering the fishing livelihoods.
- Restoring farming activities.

Participatory Relief Works

The local community will be engaged in identifying gaps in relief works, purchase and distribution of relief materials. As per the universal code, the food items which are locally consumed by the community were supplied. DHAN Foundation engaged professionals to assess the level of damages to the houses and based on which funds were allocated to the poor households to enable them to recover from the disasters.

Role of People Institutions on Disaster Risk Reduction

Disaster Preparedness

Creating data base on DRR

- Disaster prone villages – Identifying disaster prone villages in each and every location should be done and village level baseline details should be collected.
- Village level disaster mapping – Different village level mapping should be done to identify the disaster prone low laying areas in the village, disaster history of the village, seasonal months prone for disaster, etc.
- Safety recovery places – safety recovery places in the villages such as school, temple, anganwadi, disaster building, etc should be identifying in each and every villages of the block.
- Disaster risk reduction and response plan at village level – People Institution should have a specific plan on disaster risk reduction and response with specific to each village on various types of disasters. This should be documented village wise with the participation of village community and should be made as a report. The Disaster plans can be shown in the common places of the villages as a wall painting or flux board.
- Contact details at member level should be maintained - Computerized data of members and their address should be maintained at each and every people institution for timely contact and dissimination of information at time of any disaster.
- Identifying volunteers at village level – People Institution should have volunteers at each and every village other than Kalanjiam members which will quicken the process of relief works during many disaster.
- Identifying donors at local and district level – People Institution should identify and build contact with various local volunteers at village, block and district level which will be highly useful at the needy time of disaster to mobilise funds and materials. Rapport should be created by involving them regularly in activities of people institution and also honoring them during events.
- Activating DRR committees at proper interval through Mock drill – People institution should play a key role on activating the DRR committees at village level by making them participating in all village level events and conducting them Mock drill at regular intervals.

Emergency call and early warning

- Information dissemination to all villages and all members from the People Institution through SMS, Public Announcements – Even though government will be taking steps at the time of early warning at the time of disaster, People Institution should play major role in ensuring early warning to all the working villages through sending SMS to the members and leaders and also through public announcement using public address systems on streets.
- Emergency meeting at PI level about ensuring DRR & DR plan by the people institution – People institution should organise meeting at federation level with staffs and leaders about their plan on DRR and DR before the time of disaster. Further they also should ensure proper implementation and dissemination of DRR to the villages by conducting emergency cluster meetings at all the villages.
- Conducting emergency meeting to ensure DRR and DR plan. People Institution should also ensure conducting village level and hamlet level emergency

meeting at the time of any disaster. They should involve the support of local volunteers and panchayat leaders in the DRR and DR works.

- Ensuring disaster preparedness - People Institution should play a major role in ensuring disaster preparedness at each village, household and even at individual level.
  - ⇨ Village level – the evacuation centres should be created and readily made available for shifting the vulnerable people.
  - ⇨ Household level – The important and valuable household and livelihood assets should be safeguarded; basic amenities such as grocery, bed sheet, candle, kerosene, etc should be stocked.
  - ⇨ Individual level - Diseased persons should be shifted to the safest places.

Financial aspects

- Evolving clear financial policy on DRR – People Institution should have clear financial policy for disaster risk reduction at group and federation level. A separate fund can be maintained at federation to meet any disaster related expenses.
- Social security - People Institution should provide social security to all member family on life, health and asset. Life insurance should cover both the members and their spouses. Health insurance should cover the member's family holistically. Asset insurance should focus on household and livelihood assets specifically.
- Savings product for DRR – People Institution should have a savings product for disaster which could be taken by all the groups and members. This savings amounts should be readily available at the time of disaster prone months which can be easily liquefied and given to members for prepare their households for DRR.
- Emergency loans for DRR on relief and recovery – People Institution should provide emergency loan at the time of disaster to meet the urgent needs of the member family. A clear policy on such emergency loans should be formulated.
- Common fund allocation – People Institution should promote common fund allocation for DRR at all groups and the funds should be physically transferred as Fixed Deposits at each group level which can be used at the time of disaster. They should have specific policy regarding common fund allocation.
- Rescheduling of repayment – Rescheduling of loans can be done at the time of any disaster. It may include repayment of interest only, repayment of half amount of principal, savings only, etc.
- Restoration of livelihoods – People institution should have special loan product for restoration of livelihoods of affected families. The loan can be mobilised from own source, banks, etc.

Relief and recovery

- RADAR – Rapid Disaster Assessment for Reconstruction should be done at the time of disaster.
- Reporting to the local donors and volunteers – Assessment of damages by the disaster shoule be done immediately by the people institution and a report on the same should be generated. The data can be used to mobilise resource from local donors and volunteers. A proposal can also be written to mobilise funds from other possible sources.
- Ensuring proper implementation of recovery plan – A recovery plan must be done immediately after the disaster and people institutions should ensure proper implementation of the plan in all the affected villages.
- Ensuring reach of government relief works to all the affected families – People institution should support the other players involved in relief work at villages and should ensure that all the member families received relief compensations and other benefits.
- Support in recovery of damages – Kalanjiam members should involve themselves in aiding recovery services to the affected family. They should also involved in SIRAMADHAN activity at village.
- Identifying gaps with the efforts of various players and addressing through people institution.
- Taping local resources – People institution should involve in taping local resources such as funds from donors and materials from the nearby industries, business man and other well-off persons.

Women run federation promotes small millets

Bijaykumar Nayak & Karthikeyan M*

Key messages

- Improving small millets conservation, cultivation and consumption through community owned federation. Interventions on production related constraints increased the production as well as the varietal diversity of small millets considerably.
- Introduction of improved package of practices and improved varieties like GPU-66 and GPU-67 varieties of finger millet increased the production 35 percent to 50 percent for small and marginal farmers.
- Increase in consumption of small millets among the tribal community was ensured through awareness and training programmes and through demonstration on new recipes.
- The federation involved 2,560 female and 1,437 male farmers to participate in different research , skill building and promotional activities which will help for their economic development.

Context

Deomali Kalanjiam Mahasangh (A federation of Women Self-Help Groups), established in 2006, promoted by DHAN Foundation, Madurai, India, works for the socio-economic development of the tribal women at Semiliguda Semiliguda is a Block in Koraput District, Odisha, India. DHAN Foundation initiated its Kalanjiam Community Banking program in the year 1993, facilitate and empower women to engage in sustainable livelihood activities, through floating a micro credit based women self help group federation of their own. The Deomali Kalanjiam Mahasangh, a federation of women SHG thus formed presently has a member strength of 2,421 families from seventy-seven interior tribal villages, enrolled in 193 SHGs.

The federation provide support for micro-credit, training and capacity building programme, and empowerment through generating different alternative livelihoods options, linkage building with mainstream development institutions, and developing leadership quality among the members.

The need assessment done among its members, necessitated interventions in Rainfed farming, that remained as the major livelihood occupation of the

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Male and Female participation in different activities under RESMISA Project

Activities	No. of Farmers					
	Male	Female	Male	Female	Male	Female
	2011-12		2012-13		2013-14	
Research Activities	115	120	174	175	262	266
Skill Building Activities	42	33	351	284	107	1372
Promotional Activities	0	0	159	253	1068	922
Total	157	153	684	712	1437	2560

people. District Agriculture Office, Koraput, 2011 report states that 57 percent people depend on rain fed agriculture. Above 80 percent families live under below poverty line and depend on agriculture and its allied activities for their income. The Rainfed Farming Development Program (RFDP) was hence initiated by the federation in 2008, which focussed on crop productivity enhancement through effective use of resources to ensure long term sustainability.

Activities like introduction of promising varieties and crops suited to the region, seed selection, adoption of new improved package of practices and water saving techniques was done through the project.

The improved agricultural technologies were out of reach of these farmers, owing to remoteness of the area which hindered the effective extension support by the agricultural department.

Particularly no support was there for the small millet crop, traditionally grown here and which remained in the daily diet of the tribes. There was also research to improve small millet cultivation and promotion. The result, the small millet cultivation most suited to rainfed cultivation drastically declined and cash crops started occupying their space

Low yield, post harvest related constraints, intensive promotion of cash crops and changing food habits of the people, led to vanishing of many small types of millet from the food basket of the people. Small millets however offer multiple benefits including their nutritional superiority over rice and wheat, climate resilience, ability to grow in even less fertile soil with minimum inputs (water, organic fertilizers and labour)

In this context, federation members actively involved in "Revalorising small millets in rainfed regions of South Asia (RESMISA) project" to brings positive changes in conservation, cultivation and consumption of small millets. The project aimed to address the production related constraints, develops low cost farmers' suitable interventions, and promotes consumption through introducing different small millet recipes.

To achieve the above participatory field research, capacity and skill building and promotional activities were done. Research activities involved on-farm conservation, participatory varietal selection, improved package of practices experimentation, etc. Skill building activities involved exposure and training (E & T), farmers' preference analysis on performance of different varieties and training on preparation of recipes of small millets. Promotional activities involved recipe contest, organizing Walkathon on "Agricultural Bio-diversity and Food & Nutritional Security", exhibition stall at Krishi Vigyan Kendra (KVK) and through other organizational events.

Emerging outcomes

Increasing small millets varietal diversity

Increased varietal diversity, enabling to farmers to have much choice over their varieties was the major

achievement of the project. Seventy percent of farmers in 38 villages, who had access to only one or two varieties, now have access to at least four or five varieties. Twenty percent of the farmers are able to conserve more than five varieties of finger millet. Apart from this 40 varieties of finger millet, 26 varieties of little millets and 3 varieties of foxtail millet is conserved four farmers and who also closely monitor their performance.

Improved small millet cultivation practices

Through the introduction of improved package of practices of cultivation, the small millet production has increased 20-30 percent. Transplanting of finger millets, a new technology introduced among 72 farmers has increased the yield production up to 50 percent. Besides this 157 farmers could learn the art of seed selection and preservation. Some other experimentation related to cultivation like line sowing, using proper seed rate, inter-crop with pulses, Gulli method etc also was taken up by women federation.

Enhanced small millet production

Farmers also now have better access to improved varieties because of the project. The improved varieties viz., Bhairabi and Chilika of finger millet were given to 83 farmers. Bhairabi variety was cultivated by 60 percent of farmers in 38 villages, and nearly 30 percent yield increase over the conventional varieties was observed.

Similarly, more than 30 percent farmers have cultivated Chilika variety which gave 20 percent higher yield than local varieties. Moreover, 157 farmers were given GPU-

66 and GPU-67 finger millet varieties which performed well and the farmers were extremely satisfied since double the production was obtained than local varieties. Through proper seed selection and preservation 385 farmers are able to save more than two local varieties i.e. Dasarabodi, Bada and Chilli of finger millet and Kala and Bada of little millet.

"Cultivating Bhairabi and GPU-66 varieties in the same piece of land has increased my income by 40 percent. Neigbour's who got astonished by the performance of these varieties started enquiring me about it. I also learned how to select big sized fingers of Mandia (finger millet) for seed purpose. I will continue cultivating these varieties, as I am much satisfied with their performance "

-Samari Khila, *31 years, Phuldhaba, Semiliguda*

Increase small millet consumption

Dehulling of Suan (little millet) is a tedious process, requiring much skill, energy and time. Women have to parboil the little millet and dry it before hand pounding to remove the husk. It has to be pounded 4-7 times to convert it to edible form (Suan chaula) for consumption. 83 percent of women face this problem in the 38 project villages (Baseline survey, 2012).

RESMISA project to reduce drudgery of women in dehulling little millet and to enable increased consumption, installed two Suan dehullers at Bileiguda and Kunduli Hatapada village. This has considerably helped them to save their time, energy and labour.

Traditionally the tribal community used to consume only two recipes made of finger millet i.e. Mandia Jau and Landa and only Suan rice (little millet rice). To enhance consumption different type of recipes of small millets and their allied crops was introduced to 15 villages through recipe training. Now women in these villages are able to prepare four to five recipes, which enhanced the dietary diversity of small millet consumption.

Through Walkathon on "Agricultural Bio-diversity and Food & Nutrition Security", demonstration on 11 recipes of small millets was done in which school children, academics, politicians, governments and non-government organizations participated. This has increased interest among 20 percent school going children for consumption of small millets recipes.

"Suan dehuller helps be to get Suan chaula from little millet very easily. Earlier we find the task very tedious as we have to hand pound them and also takes most of our time. Now we are glad that we can get Suan chaula not only for our consumption, but also sell it to others, which fetches additional income. The recipe training too helped me to make different foods like Suan puma, Suan dose, Suan chirr, Suan idly, which my family likes".

- **Lalitha Pandka**, *32 years, Bileiguda, Semiliguda*

Conclusion

Deomali Kalanjiam Mahasangh has successfully implemented RESMISA project for increasing income (by 25-30 percent) with the introduction of farmers preferred suitable improved varieties as well as improved package of practices for small millet cultivation. It has reached within large numbers of tribal community and increased their capacity for understanding different varietal diversification, improved cultivation practices which not only help for small millet but also for other crops cultivated locally.

This project has given space for women to involve in several research, skill building and promotional activities.

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Committed to the Cause

Dhamodaran T*

This is the story of Pachaiyammal, whose selfless service to the poor women enrolled in Kalanjiam Self help groups enabled to hone her leadership skills and become an in formidable force in Ponnamapettai Vattara Kalanjiam in Salem District Tamilnadu. Her contributions for the Kalanjiam women and the society are commendable.

Pachaiyammal doesn't know the meaning of laziness even at this age of sixty two. Untiring she used to run from pillar to post looking after her family, supporting her husband in painting works and involving herself actively for development of women SHG members in Ponnamapettai Vattara Kalanjiam. Yes! Pachaiammal is the President of women self help group federation 'Ponnamapettai Vattara Kalanjiam' in Salem, who gradually rose to this position after joining as a member in women self help group promoted by DHAN Foundation.

Pachaiammal lives in a joint family with her mother Ms.Chinnaponnu, son Mr.Manigandan, daughter –in-law Ms.Meena and grand children in an area known as Vaaikaal Pattarai in Ponnamapettai, where the inhabitants are either poor or belong to middle class. When we go looking for her, we will be given with an answer that she has gone for the job or to the women self help group federation to perform her duty. She also works as a Field associate in that federation. The commitment to the society, hard work and values are inherent in this simple woman, making her a good leader.

Family

Ms.Pachayammal was born in a small village called Aataiampatti; near Veerapandi in Salem District were some her ancestors still live. Her mother Ms.Chinnaponnu got married at an early age to Mr.Kandasamy gounder. Ms.Pachaiammal was born on 12th Dec, 1952 as the eldest daughter. She has one younger sister Ms.Porkodi. Her younger brother, Mr.Marimuthu, died at the age of five due to chicken box.

Pachiyammal even at her tender age is known for her compassion and generosity without expecting any returns. She still remembers an incident of purchasing a trouser for a school boy, using the money she saved while at school.

Pachaiyammal pursued her education up to 10th Standard in Aattaiyampatti Government high school during which she excelled not only in her studies, but also in extracurricular activities winning prizes in sports and drawing competitions held at school level. Though Pachaiyammal aspired to do training in nursing, her her family situation put an end to her dreams. Early marriage was so common in those days and Pachaiyammal got married to Mr.Rajamanikkam on 11th Feb, 1968 and settled in Sittherikadu, her husband's home town.

Joining Kalanjiam

Owing to ill health of her husband Pachaiammal was forced to migrate from Sittherikadu to Ponnamapettai, and lived in a small rental hut. She engaged herself in small petty businesses like selling coconuts and Green peas Sundal (a healthy snack that has to be prepared afresh daily). She could earn a daily income of ₹ 75 through these activities. Her husband's health also recovered in the mean time and he started to engage in white washing houses. Pachaiyammal also used to support him in this activity.

Though she got engaged in doing white washing works along with her husband, she did not stop selling of Green

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peas sundal and Coconut after work hours, which also gave her additional income.

It was in 1990, when Pachaiyammal was struggling to make her needs met, the staff from Ponnamapettai women self help group federation, came and met the women in her locality, spoke to them about the concept of SHGs and the benefits they could able to derive from them. They asked them to pay an enrollment fee of ₹ 1 for joining the group and later save one hundred rupees every month, which will enable them to meet their financial needs. Though no one heeded at first, Pachaiyammal got convinced about the concept and expressed her willingness to form a group by convincing her neighborhood women. Pachaiammal spoke to many and formed Karpaka Vinayaga Kalanjiam with twenty women members. Ms. Lakshmi was selected as the president, Ms. Dhavamani as secretary and Ms. Pachaiammal became the treasurer of the Kalanjiam. The Kalanjiam had a fixed meeting date on 5th of every month and all the members saved one hundred rupees every month. They were subjected to various trainings from value based functioning without caste and creed differences to proper maintenance of accounts. Pachaiammal quickly learned the nuances of the self help group functioning became an active participant in the meetings and soon was able to clarify the doubts of other members.

Assuming Leadership

Her active participation in Kalanjiam and Cluster meetings, knowledge and interpersonal skills soon made her the Treasurer of Vaaikaal Pattarai Cluster by 12th June, 2003. She executed her role with perfection during the period. She had the opportunity to speak on the stage for the first time in a Cluster Mahasabha meeting and her speech was so motivating to the SHG members present during the meeting. She as a leader also took efforts to revive the poorly performing Kalanjiams by paying regular visits to member families and motivating them, She also visited Kalanjiams for the loan appraisal process, which proved to be effective in ensuring repayment. Because of her active involvement in Kalanjiam, she could not pay enough attention towards selling green peace snacks and her income reduced a bit. But she wasn't much worried about losing some income. Her efforts in Vaaikaal Pattarai cluster led to improvement of functioning of all Kalanjiams in the cluster, and that gave her utmost satisfaction.

Her role as Treasurer of Vaaikal Pattarai cluster got appreciation from the leaders of other clusters as well and also the federation staffs. Hence during the twelfth Mahasabha function held at September, 2005 she was selected unanimously as the Treasurer of the federation 'Ponnamapettai Vattara Kalanjiam". Motivated by this she became still more active in federation activities which in turn made Ponnamapettai Vattara Kalanjiam vibrant. Her role in mobilizing resources for the federation was also commendable. Not to lose her selfless service to the federation, when the rotation of leadership occurred, she was once again selected as the President of Ponnamapettai Vattara Kalanjiam on 6th June, 2012.

As Cluster associate

The cluster associates in a federation perform various roles like ensuring the regular and on time conductance of group meetings, maintenance of proper accounts of the Kalanjiam, facilitating the loan appraisal process and also educating the members regarding any new developmental schemes introduced. Pachaiyammal also perform the role of cluster associates in Vaaikal Pattarai Cluster.

Pachaiyammal possess all the qualities of a good leader

- Treating all Kalanjiam members without disparity
- Good and quick decision making capabilities
- Creating a personal rapport with the members by participating in all events held at member families.
- Supporting the Kalanjiam and Kalanjiam members in getting timely loan and other benefits.
- Selfless untiring work for the community

Achievements

Pachaiammal actively involved herself in group promotion and due to her individual effort five new Kalanjiams were formed in the federation. Apart from this through joint effort with other leaders and cluster associates, she was instrumental in forming fifteen more Kalanjiams in the federation. She was involved in problem solving in Kalanjiams and prevented many groups from getting defunct or dissolved through her timely guidance and support.

In 2006 she also went to support Thalaivasal Vattara Kalanjiam and regularized the functioning of six Kalanjiams, which hitherto had many issues such as improper repayment of loans as per demand, refusal to join any social welfare schemes etc., She along with other leaders spoke with them, convinced them and enabled them to function effectively.

As a trainer, she trains members and leaders on Kalanjiam mutual movement schemes, leadership skills, roles and responsibilities of a federation, group insurance and health insurance schemes. Because of her efforts, 5951 members and their spouse got enrolled in the JBY group insurance scheme of LIC. Similarly 1100 families were covered under the health insurance scheme. 1100 students pertaining to families enrolled in JBY scheme received ₹1200 as scholarship, which was the additional benefit the members derived because of joining the insurance scheme.

Apart from this Pachiayammal took efforts in solving the public issues in her village like drinking water problem, drainage problem etc., She used to lodge complaint with the concerned authorities whenever such problem arises and ensured that proper action is taken. She used to play a major role in organizing events like cluster and federation mahasabas and in ensuring participation of all Kalanjiam members in the event. Yearly once, during the Kalanjiam movement day she provides free food, spending he own money to 80 blind children studying in a school meant for them.

Grading parameters are fixed in Ponnamapettai Vattara Kalanjiam to monitor the performance of leaders and Pachaiyammal use to get the highest grade every time, because of her effective performance. The performance indicators fixed were highest savings, regular loan repayment without any default, good habits, timeliness and executing the roles and responsibilities properly.

Pachiammal was honored by the Branch Manager, Indian Bank during the federation Mahasaba function held at 2008 for saving ₹ 300/ per month, the highest saving by a Kalanjiam member in a group. In the function held at Atthur Vattara Kalanjiam she was honored with a memento by Mr.M.P.Vasimalai, Executive Director of DHAN Foundation for her leadership skills.

She was also instrumental in grooming many Kalanjiam women into leaders. Ms.Chandra, President of Vaikaal Pattarai Cluster, Ms.Uma, President, Krishnan Pudhur Cluster, Ms.Saraswathi, President Sathya Nagar cluster, Ms. Nallamaniammal, President, Jyothi Cluster etc., are the few leaders who were empowered to become leaders through the able guidance of Pachaiammal. She also became the leader of Suham hospital, promoted by Kalanjiam federations in Salem by 6th June, 2012. She was appointed as a representative to link government welfare schemes for handicapped, women welfare schemes, pension scheme for elders. She also played a major role in implementing the anemia program and supported formation of adolescent girls groups in the federation.

Aspirations of Pachaiammal

Pachaiammal aspires to reduce the disparity between rich and poor to create a healthy society. She also has a desire to create a disease free younger generation, by creating awareness on health, hygiene and sanitation. She wishes to enroll all the left out poor in Salem district in Kalanjiams so that they get relieved from the clutches of poverty. Despite the presence of Kalanjiam, women still get trapped into the hands of usury, forcing them even to commit suicide. She has pledged herself to put an end to the usury problems in her area by educating the women. To enhance the livelihood of members, she encourages the members to use their loans productively by engaging themselves in a small business activity that suits their skills and demands in the locality. She wishes that everyone who got enrolled in Kalanjiam must lead a better life than before.

Pachaiyammal says "When I migrated from Sittherikadu village to Ponnamapettai along with my husband and children, I had a lonely feeling. I know nothing but pains and no one was there to console me. I even thought of committing suicide along with the family, but got counseled by a neighbor to face the world boldly. But after joining Kalanjiam I felt that the entire world is behind me, since I had the opportunity to mingle with more women and accepted as a leader by them. Now feel proud that I could make my son to study M.B.A and lead a fulfilled life. I feel glad to serve the Kalanjiam Federation and the poor women who are its members'.

Pachaiyammal's life is an inspiration for all women who struggle to face the challenges the world offers them and covert them into opportunities.

Facilitating Marketing-Scope for Linkage

T.Dhanabalan*

Marketing agricultural commodities and other related products involves middlemen who make a dent in the income of producers and also costing consumers too much. There is a rapid transformation in agricultural produce marketing, the products are getting less exposed to open market sales through street vendors, weekly shandies especially in Cities. Big corporates are trying to capitalize the regular market which prevails for these commodities by establishing their own system of procurement and marketing, the cost of which in inbuilt in the product they market. Growing importance to vertical coordination through contract farming which includes input supply like seeds, fertilizers, technical guidance and credit lures farmers to grow high-value commodities is also a cause of concern. The demand for such produce will not remain uniform and drastic change may happen which will force the organizations to breech the contract as happening the case of Safed musli, Coleus, Aloe vera etc. There is also emphasis on quality, standards and traceability.

The consumer demands are also changing in the fast paced world, the type, form and quality of products deciding their demand. Increasing health consciousness among upper class and upper middle class has made them to seek produce which just doesn't fill their stomach and satisfy their taste buds, but also which ensures that their body remains healthy. Ready to eat and fully processed products/value added products which are ready to cook are getting more popular. You can see attractively packed "Masalas" and 'Ready mixes' now even at a small grocery shop in a village. Quality and safety conscious also has increased (e.g., organic stores)

Linking farmers with the market

Linking farmers both with the input and output market is crucial and production push focus is no longer a viable option. Ad hoc sales of small surpluses are also not realistic as the farmers could not capitalize on the demand for the produce due to increased transaction and processing cost (for e.g. like in the sales of little millet – Samai in Jawadhu hills. A long term approach is needed in designing a market strategy and farmers must be kept ready to respond to the market demand (what produce to grow, how much and when). Also long term business partnerships offer great scope for increased earnings. Institutions play five potential roles in strengthening

Role of Market Institution	Type of Market Institution
Reducing market cost	• Market information/intelligence systems • Auctions and exchanges • Grades and standards • Legal enforcement mechanisms
Reducing market risk	• Forward and options contracts • Vertical integration schemes
Increasing social capital	• Producer marketing associations and cooperatives • Trader networks
Enabling collective action	• Producer marketing associations and cooperatives • Industry groups • User groups
Readdressing missing market for credit	• Warehouse receipt systems • Contract farming • Credit guarantee systems • SACCOs and cooperative banks

Source: Were (2003)

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markets for commodities produced, bought, and sold by smallholders: reducing transaction costs; managing risk; building social capital; enabling collective action; and redressing missing markets.

As a facilitating institution Kalanjiam Thozilagam limited can offer services to reduce market cost and market risk and for enabling collective action. The people institutions promoted through different programs can provide the necessary support for increasing social capital and credit and facilitate formation of primary producer/marketing groups and their nested producer organization.

Risks

Market for agricultural produce is highly fluctuating, sometimes even forcing to break down of contractual arrangements, as experienced in marketing Coleus, Neem Leaves, Gerkhins, Aloe vera, safed musli etc. There is also a risk that the buyer will break on an agreement when he sees the opportunity of another potential customer through whom he can reap higher profits.

Benefits for traders and agri-food companies through organized linkage like producer organization

- Economy of scale in purchasing- by aggregating and pooling the produce
- Increased and more reliable supplies
- Ability to control quality
- Overcome land constraint (they need not have lands)
- Both Politically and socially acceptable strategy

However they are likely to have some disadvantages like high transaction cost (may have to open different procurement centers), input diversion to other prospective crops, extra contractual marketing, traceability problems when buying from many farmers (different PPGs) and supply interruptions.

Types of Linkages

The produce from farm reaches the consumer through many means. Though different forms of marketing channels have evolved the basic system of reaching out the produce still remains intact in villages. The different forms of linkages can be broadly classified as follows

- **Farmers to Domestic Traders:** A domestic trader is often a well-known person in the village who has developed personal relationship with farmers over a period of time. Sometimes he acts independently or with the support of wholesalers. An informal buy back arrangement may exist many a times, as the farmer would have borrowed some money from him for raising his crop/cattle. The benefit is the trader comes to the door step of the farmer, but the price offered will be lower than real market price. E.g. Credit to farmers for small millet procurement in Peraiyur, Cotton in Perambalur, milk
- **Farmer to modern Retailer:** The farmers may supply to the modern retail shop located in cities either individually or by organizing themselves into a group, which may be facilitated by the agent appointed by the modern retail shop or through a wholesaler (Reliance fresh, Big Bazaar, Thottam etc.)
- **Linkages through leading farmer/Pesticide/ Fertilizer Dealers:** A leading farmer in the village or the fertilizer/pesticide shop owners who have regular contact with the farmers. They will supply farm inputs like fertilizers, pesticides through credit and in turn buy back the produce. The farmer will be given with an amount after deducting the price of fertilizer and pesticides along with an interest which is usually higher than the normal interest rates. (e.g. the cotton farmers of Andra Pradesh where the farmers are most exploited, Perumbalur district in Tamilnadu etc.,)
- **Linkages through cooperatives/ Producer companies:** This is the most organized form where even a small farmer can benefit through the process of profit sharing. Effectively managed cooperatives and producer companies can transform the lives of farmers (e.g., AMUL).
- **Linkage through Contract farming:** A formal agreement will be made with the farmer for production and supply of a particular farm produce. Even the rates at which the product will be purchased are assured.
- **Farmer to agro processor:** Initiated by the processor who procures, process and sell the produce through an external catalyst or facilitator (Heritage milk)or sometimes initiated by the government such as oil palm schemes.
- **Farmer to Exporter:** With the support of external catalyst and at time developed by the participants themselves (group of producer companies)

Market linkages for NGO facilitated Business linkages

For a successful linkage there should be profitable market for the produce. The capacity of the linking organization, mutual trust between parties involved, enabling environment, scale of operation, organizing farmers into collectives through business orientation, maintaining linkages and managing such groups, realism in approach and ensuring sustainability are the key factors.

Markets

Markets must be available and profitable. Potential risks involved in market are rapid price fluctuations, highly competitive market and limited number of buyers. Not only the market but also the marketing chain must be fully understood to minimize the length of the chain

Capitalizing on the existing opportunities (gaps in the market) is crucial for success for e.g. developing a local market and import substitution. For example in case of small millets 90 % of them are transported to Nashik for processing and re-transported to Tamilnadu for Marketing, thereby escalating the cost for consumers. Such cost of transaction can be minimized by identifying potential spots for processing at local level. Promoting local consumption, High-value products (organic product marketing), Value addition, Niche marketing and fair trade will also facilitate effective marketing.

Capacity of linking organizations

Many linking organizations lack a business orientation. This is especially true in the case of many Non-governmental organizations (NGOs) as they are accustomed to non-profit activities. Difficulty in attracting right staff and residual suspicion of private sector also affects the capacity. To improve the capacity of linking organizations trainings on contract negotiations, market research, value chain analysis and business management are vital.

Subsidies

Contrary to the regular notion, subsidies are incompatible with efforts to develop profitable and sustainable business ventures. Non-profit organization and other linking organizations have in past often had a subsidy orientation, which is not viable option thinking on a long term basis. Available resources should be spent on linkage development, training, market assessment but not on farm inputs or marketing. The benefit through subsidy support for large-scale agro-processing machineries and equipment's is also questionable. It is better not to rely on subsidies for marketing of farm inputs.

Mutual trust

Developing mutual trust is very difficult with respect to marketing as each and everyone involved will operate with a profit motive. However a fair, long term and sustainable trade linkage through which everyone gets benefited to the optimum is possible if mutual trust gets established. Many linkage activities breakdown because of disagreements like lack of understanding of long term benefits, no social capital and parties remote to each other. From an agro-food company perspective the major problem is extra-contractual as in the case of sugarcane.

Enabling environment

The policy environment should facilitate linkage development both directly by the private sector and through project interventions. In doing so governments need to avoid

- Choosing target enterprises. This should be decided by the market (government efforts to promote Jetropha failed and many companies which got floated relying on government support incurred a loss)
- Undermining commercial service providers
- Absorbing costs and so creating artificial and non-sustainable business conditions (subsidies and grants. Even without them the business should run profitably)
- Framing policies without understanding the grassroots market niche (opening the floor for multinational retail giants like Wallmart)

Besides this stable macro-economic environment, good and clean government without corruption is necessary to attract investors. The legal and regulatory framework should facilitate adherence to contracts, promotion of farmers collectives (producer companies and cooperatives), fair trade and enhance value of the produce (Good Agronomic practices GAP, organic certification)

Infrastructure like transport (rural roads, highways, port and airports), communication (not a problem now and yet day to day market information is still unavailable to farmers due to lack of appropriate systems), power, water supplies and storage facilities (godowns, cold storage units) are very crucial. Post-harvest loss of produce is very high in our country (40 to 50 %) contributing to a loss to a tune of ₹ 2,00,000 lakh crore, every year which implies explicitly that our post-harvest facilities are very weak

Organizing into farm collectives

In country like India with small and marginal farmers like fragmented landholdings, collective farming and collective marketing is the best way to reap higher profits. The NGOs and donor stress on organizing people into groups for any developmental intervention and the same holds good commodity based/activity based business groups. People may have reluctance to work together since it necessitates sharing of profit on uniform basis irrespective of their contribution of the activity in terms of labor (even though the investment is uniform).

So the economic benefits, group norms should be made clear to establish trust. However it is easy to involve people who are organized into groups as in the case of people institutions promoted by DHAN across various themes. The type of activity chosen may differ according to context and what is important is the scale, market demand for the produce, mutual trust and commitment among the members to undertake the business activity chosen.

However more stress should be given on capacity building of such farmers groups to run the business as a profitable activity. Training on market intelligence, account keeping, entrepreneurial skills, contracts negotiating, conflict management, maintaining transparency in activities and how to react quickly to changing demands of the market, planning and logistics, legal compliance etc., can be the part of such trainings.

Linking farmers to market is not synonymous with social welfare and there is a risk of sustainability, replication and scalability of such operation in such external linkage interventions. Hence more caution has to be exerted while devising the strategy for a particular intervention. Experts should be rope in to provide a clear guidance to farmers.

Many external linkage activities have large number of partners who may not always share the same approaches and motives, and if there are too many cooks like this it will spoil the sport. We should be realistic in planning, expectation and execution. Also should remain flexible and learn from mistakes.

Sustainable small improvements are better than unsustainable large one keeping in mind the principle of 'Small is Beautiful'. Sufficient backup to farmers by way of appropriate credit with reasonable time scale and interest to meet the financial needs of the farmers will be an added asset. Last but not the least non-profit organizations should not shy away from private sector enterprises with business motive. Linkage with suitable private sector will remain only as an additional benefit and not as a burden. Small traders can remain as an effective linkage as they always look forward and respond to new trends. There is no specific model available for success of collective farm business and it may vary according to the context and type of produce we market. The prime focus however should be on profitability. Kalanjiam Thozilagam Limited has good experience in guiding the farmers towards profitability.

Linking people Institutions with Kalanjiam Thozilagam Limited

The Kalanjiam Thozilagam Limited can provide production oriented backward linkage through supply of agricultural inputs and raw materials. Seeds, fertilizers, pesticides, organic inputs, technology, agricultural implements, transport and logistics, primary processing support, quality control, support for formation of primary producer groups and capacity building services can be provided by KTL. As a forward market oriented linkage KTL can facilitate marketing of the produce/product, price negotiation and fixation, market intelligence support, packaging and forwarding, branding and feedback on quality.

KTL has experience in marketing of Maize, chilies, charcoal, dry fish, fish meal, medicinal and aromatic plants, small millets and has floated producer organizations for marketing Ramnad chilies, Charcoal, Tamarind, Milk (Anandham dairy), Vegetables (Thottam initiative) and medicinal plants. This has been done by coordinating with existing people institutions promoted under various thematic programs of DHAN Foundation. The past experience shows that these interventions were not free from constraints.

Some of the constraints like priority of people institutions over welfare measures rather than business interventions, lack of business knowledge and skills among grassroots workers, insufficient manpower, no continuity of supply due to seasonality of the produce, though there is demand in produce, financial constraint to hold large volumes for future sales and competitors behavior has hindered the effect of KTL to some extent.

To overcome this in future capacity building of field staffs towards business oriented approach, long term planning with demand potential analysis, building a corpus at federation for such business interventions, making people institutions to work on target mode to enable formation of producer companies with sufficient scale for viability are to be done.

Way forward

There is huge potential for KTL to link with the vayalagams, Kalanjiams, rainfed farmers groups and coastal agricultural groups. A clear base already exists. What is needed is a clear plan for business intervention on part of the locations and regions. Each location and region must come up with a livelihood plan with focus and scope for formation primary producer and marketing groups. Identify the product/products which have high degree of market potential. Assess the weakness in the existing system and how far it affects the producers and consumers. Do a detailed plan for an alternative system, which can do away with the gaps. A regional level planning will give a clear idea about whether we have the scale to make the business profitable. If there is good potential, they can join hands with Kalanjiam Thozilagam Limited to implement it in a most appropriate manner.

The planning should start from grassroots to analyze the need of the community and the same should be matched with market demand. Accordingly federations/regions can extend their support for forming producer groups with the guidance of Kalanjiam Thozilagam limited. There is no business without competition and we should plan with a long term vision to achieve solid results for benefit of the community with whom we are working.

Reference

Strengthening market linkages to farmers. Andrew.W.Shepherd, FAO, Rome. □

Field Notes - Kalanjiam Programme

My Life changed to a Beautiful Garden

I am Mariarasaatthi, a member in Kannima Kalanjiam, Dharmathupatti Cluster, Kannivadi vatara Kalanjiam (Federation) for the past ten years. Presently I am selected as the leader of the Kalanjiam. After my husband's demise I struggled a lot to raise my only male child and has borrowed external debts to run the family. Later I came to know about Kalanjiam , joined it which helped me to close my external debt and relieved me from paying heavy interest.

I wished to do farming on my own and borrowed ₹ 25,000 from Kalanjiam, leased a land and grew flowers crops in it. This fetches me additional income of ₹ 6,000 per year. I also supported the marriage of my sister through this money. I have closed the loan and taken another ₹ 40,000 as loan again to lease additional land for agriculture. I am proud to be the leader of Kalanjiam which helped me to relieve from the clutches of usury, and also ensured my livelihood.

- Mariasaatthi, Kalanjiam: Somalingasmai, Cluster: Dharmathupatti, Federation: Kannivadi Vattara Kalanjiam

Petty shop provides me good income

I am Shalini, member of Mayilmurugan Kalanjiam for the past four years. Before I joined Kalanjiam, my husband was the only source of income to the family and I remained as housewife. Later after joining Kalanjiam, I wished to run a petty shop for which I borrowed ₹ 5,000 from Kalanjiam. Later again I borrowed ₹ 10,000 to extend by petty shop. The shop now brings ₹ 5,000 income per month to the family and I thank Kalanjiam which helped to increase the income of my family.

- Shalini, Kalanjiam: Mayilmurugan, Cluster: Dharmatthupatti-2, Federation: Kannivadi Vattara Kalanjiam

Clarion Call - Documentry Film Release

Students who were pursuing M.A., English Literature in Fathima College, Madurai have produced a documentry film to create awareness on the need for a plastic free environment.

The documentry titled "A Clarion Call' was produced by the first year postgraduate students of English Department with the support of Centre for Development communication, DHAN Foundation was released by Jospin Nirmala Mary, Pricnipal and Francis Pauline, Secretary of Fathima College, on 2nd April, 2014. P.Krishnamurhti, Team Leader, Centre for Development Communication of DHAN Foundation, received the first copy of the documentry film. The documentry narrated in the view of a young girl attending college, expresses her concern for maintaining a healthy environment by protecting tress and avoiding usage of plastic and runs for ten minutes. It also talks about the 3500 students of Fathima College who are maintaining1500 trees in the campus and also a plastic free environment in the campus. Speaking on the event Ms.Geetha, Head of the English Department said that this is the ninth docuemtentry produced by the department with the support of DHAN and she acknowledged the technical guidance and provision of equipments by DHAN for producing the documentry. Eighteen students were involved in the production of documentry of which two students Ms.A.Shinee and Ms.Mrinalini shared their experience in documentry film making.

Walkathon 2014-Essay & Drawing Competition Winners

Winners of Essay and Drawing competitions held at Madurai were announced by DHAN Foundation. The competitions were held in two categories for each- 6th to 9th Standard and 10th to 12th Standard. In the 6th to 9th standard category, 988 entries were there for essay competition and 166 entries for drawing. In the other category there were 653 entries for essay and 21 entries for drawing. Students from thirty schools in Madurai participated in the contest. The winners are

Category	Prize	Essay Competition	Drawing competiton
6th to 9th standard	First	K.B.Hemapriya, 8th Std, Sourashtra Girls Higher Secondary School	S.Pradheepa, 9th Std, Sourashtra Girls Higher Secondary School
	Second	U.Nivedhitha, 9th Standard, Seventh Day Advenstist School, Jeeva Nagar, Madurai	S.K Gokulshri, 8th Standard, Sourashtra Boys Higher Secondary School
	Third	R. Rampravin, IX E, Mahatma Montessori Matric and Hr. Sec school, surveyar Colony,	Y.P Sai Krithika, VII C , Holy Family Girls Higher Secondary school
10th to 12th Standard	First	C. Muthumeena, X D , Jothy Hr. Sec school, Narimedu	S. Sangeetha, XII A Virudhunagar Hindu Nadar Grls Hr. Sec School
	Second	K. Senthil Kumar, XI B , Nadar Boys Hr.Sec School, South Gate, Madurai	P.Aruna Devi, XI B, Velliveedhiyar Corporation Higher Sec School
		N. Naga arjun XI D , Sourashtra Boys Higher Secondary School	

Walkathon 2014: S. Sangeetha, *XII A Virudhunagar Hindu Nadar Girls Hr. Sec. School,* won first prize in Drawing competition held at Madurai.

Finger millet biodiversity plot

Finger millet biodiversity plot with ten different varieties was laid in Anjetti through the project Revalorizing small millets in South Asia. The local farmers from surrounding villages paid frequent visit to plots to analyze the performance of varieties. Farmers preference analysis of the varieties was also carried out, during which farmers they assessed the performance of varieties and rated them. The varieties Kempu ragi, Halukuli, GPU 66 and Shardha varieties were found performing well.

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