

NUTRITIONAL AND HEALTH SECURITY THROUGH INTEGRATED GARDENS FOR WOMEN'S EMPOWERMENT: THE CIKS EXPERIENCE

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Introduction

Vegetables occupy an important place in our daily life particularly for vegetarians. Vegetables are the only source to increase not only the nutritive values of foods but also their palatability. For a balanced diet, an adult should have an intake of 85g of fruits and 300g of vegetables per day according to the dietary recommendation of nutrition specialists. But the present level of production of vegetables in our country can permit a per capita consumption of only 120g of vegetables per day. In India one of the consequences of the green revolution was that it brought in mono-cropping leading to a drastic reduction of crop diversity of farm lands. This shift in agriculture focusing on a market-driven economy where cash crops took precedent, had its toll; household needs for a range of cereals, pulses and vegetables were not met from the farm but purchased from the market.

The Centre for Indian Knowledge Systems (CIKS),¹ a non-profit organisation based in Tamil Nadu is working towards enhancing the livelihoods of small and marginal farmers through sustainable organic agriculture. Its focus areas of work are biodiversity conservation, organic agriculture and Vrkshayurveda (Traditional Indian Plant Science). It was felt by farmers working with CIKS that organic agriculture could be done better if they had access to indigenous seeds which were prevalent before the Green Revolution. CIKS undertook a major project to revive indigenous paddy varieties of Tamil Nadu and also create markets for them. It proved extremely beneficial to farmers by raising their income levels and decreasing cultivation costs. Some of the varieties also had very special nutritional and medicinal properties and CIKS continues to do research and promote them. Since vegetables also form a major part of the diet of every household, CIKS was interested to understand the situation of indigenous vegetables in the field. The present case study describes in detail the efforts of CIKS to revive indigenous vegetables and how it not only contributed to the biodiversity conservation of vegetables but also to the nutritional, financial and health security of the women who were involved in conserving them. It also contributed to the empowerment of women farmers which is one of the major goals of CIKS. The authors did a desk review of the reports of projects where kitchen were included and conducted detailed interviews with some of farmers who are currently

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¹ CIKS undertakes a large number of research activities. Most of them are in the nature of participatory research involving farmers in their fields. Different organic products used in agriculture are tested out in the field and laboratory before they are taken up for large scale dissemination. Research on the characteristics of different indigenous varieties is also undertaken in the research farm which also serves as a demonstration field for farmers.

maintaining kitchen gardens in the districts of Nagapattinam, Ramanathapuram and Kancheepuram. Furthermore, three brainstorming meetings of groups of farmers involved in the programme were organized.

The beginning

During a survey to collect and document indigenous rice and vegetable varieties in Tamil Nadu the researchers came across a very disturbing trend. The backyard gardens which rural women used to maintain for a regular supply of vegetables for their family were fast vanishing. Women were no longer interested in maintaining them and only families that could afford purchasing them from the market had vegetables as part of their regular diet. This was also contributing to the malnutrition of the family. On detailed investigation it came to light that after the introduction of High Yielding Varieties (HYV) of vegetables farmers had given up their indigenous varieties. Over a period of time these varieties had been lost. However, farm families had to purchase the HYV of vegetables year after year from the market. The HYV and hybrid vegetables that they purchased were highly pest and disease prone. Seeds were expensive, germination capacity was very poor and they had to use chemical pesticides and fertilizers for cultivation which meant an additional expense. Fulfilling all these requirements and maintaining a backyard garden was considered an unviable proposition by these women and they had given up cultivating vegetables in their backyard which had led to a different dietary composition of the family meal. CIKS also realised that the use of herbs for treating primary health conditions was also fast deteriorating. The distance between a medical facility and the villagers was also a negative factor in having access to modern medical facilities.

This was an alarming situation and CIKS decided to make an intervention. Strengthening Women Self-Help Groups (SHGs) was part of CIKS's programme on community-led natural resources management. CIKS decided to involve these women in SHGs to revive the backyard gardens. The Centre conceived a programme wherein cultivation of vegetables in homesteads along with herbs would be taken up by women farmers. Small and marginal farm women would be trained in growing vegetables and herbs in their homesteads as well as using the herbs for treating primary health conditions. The technology of vegetable seed production would also be provided so that they would have access to seeds year after year and not have to depend on external sources. Spending money for the purchase of seeds in every season would also be avoided. The concept of integrated home gardens involving women was started in the year 1999 which has currently grown into a large programme spread over five districts of Tamil Nadu. It is a 90% women oriented programme and has reached out to nearly 2,000 households.

Socio-political context

This initiative was taken up in a socio- political context of post green revolution when farmers had switched over to growing high yielding varieties (and were market dependent for seeds, forgetting the time-tested practice of seed saving), rampant use of fertilisers and pesticides without the knowledge of their adverse effects. Cultivation of cash crops was predominant and the money from their sale was used to buy vegetables and other cereals for home. The government of India was heavily subsidising the price of fertilisers and was encouraging its use. The unwanted side-effects of the green revolution like pest resilience, contamination of water resources, pest and disease outbreak were also evident. The government was also

establishing allopathic-based Primary Health Care Centres (PHC) in rural areas to cover the entire rural population but they were not adequately staffed. The traditional knowledge of the use of herbs for households was not used by the younger generation. Consumerism as a result of globalisation was fast spreading into the rural population. An intervention of this sort was the need of the hour.

The project

Though the idea of organic vegetable gardens integrating indigenous vegetables and herbs was very innovative, the execution of the same was indeed very difficult. Logistical details like location, convincing farm women and men, dependency of seeds from external sources, comparison of allopathic to traditional herbal medicines and sustained effort were some issues which CIKS anticipated before the inception of the project. The concept was introduced to the farmers with whom CIKS was already working on other issues. CIKS kick-started the project through the self-help group women members of rural villages of Kancheepuram and Nagapattinam initially and later in the Thiruvannamalai, Ramanathapuram and Dindigul districts of Tamil Nadu.

CIKS looked towards achieving nutritional, health and financial security as major objectives through the promotion of these integrated gardens. Towards achieving these objectives, the following activities were planned:

- Involving women in setting up integrated organic kitchen gardens where they would be encouraged to cultivate indigenous vegetable varieties and common herbs;
- Empowering and training selected women and men on use of technologies related to organic farming so they would also become future trainers;
- Conserving biodiversity of vegetables and fruits;
- Providing training to beneficiaries to use herbs for common ailments thereby contributing to the health security of the household;
- Training women in seed production so that it becomes a viable income-generating activity. This would enable farmers to have seed security by maintaining their own seeds season after season and also financial security by getting a good price for selling additional seeds. Women also get additional income by the sale of extra vegetables after meeting the household's needs;
- Establishing organic farmers' *sangam* in the programme villages and implement the programme through them so that it becomes a sustainable and replicable model.

Training on establishing the organic kitchen garden was offered to women members of self-help groups. These women in turn trained the men of the household as well as grown up children. The concept of organic farming is as simple as it sounds. Organic gardening means cultivation of plants without the use of synthetic fertilisers and pesticides. The vegetables grown in all these gardens are organic in nature with minimal external inputs i.e. there is no use of chemical pesticide or insecticide or manure for its growth. The organic gardening begins right from the soil preparation by using locally available resources for the vegetables. It is essential to choose plants suited to the site and adapted to the specific climatic condition. The members were given training on the preparation of the biopesticides using several botanicals like neem seed kernel extract, five leaf extract, garlic, ginger, chilli extract etc. Support was

also provided for the construction of common biopesticide production units in villages. Topics like land preparation, seed treatment, nursery preparation, nutrient management, pest and disease management, biopesticide preparation and harvest formed part of the training modules. Trainings on specific preparations using herbs for taking care of common ailments were also given by involving Ayurvedic doctors. Techniques of cultivation of common herbs were taught by botanists in the team.



Extension staff visiting a kitchen garden

Main actors

The main actors involved in this project were village women (landless or landed) who have organised themselves into self- help groups and not registered with a government agency. The group takes up savings and credit also, apart from building capacities in on-farm and off-farm activities provided by CIKS. The Centre through project support provided the women an initial supply of good quality indigenous seeds from its collection

Herbs

Besides vegetables, the members were also taught the importance of growing herbs in their kitchen garden. The various herbs grown by them were *Aloe vera*, *Hibiscus*, *Black Night Shade*, *Indian gooseberry*, *Papaya*, *Curry leaf*, *Holy basil / Sacred basil*, *Indian borage*, *Air plant*,

Sweet basil / Common basil, Indian pennywort, Malabar nut, Climbing brinjal, Four-leafed devil pepper, Tinospora, Periploca of the woods and Country mallow.

Setting up a Kitchen Garden

The size of a garden is not defined because it depends on the space available at the backyard of an individual house. As far as the shape is concerned a rectangular garden is preferred to a square one. Normally for a family of 5-6 people, 2 cents (870 sq ft) may be adequate to get vegetables throughout the year.

Layout

The main purpose of planning a layout for a vegetable garden is to obtain maximum output and a continuous supply of vegetables. The principles that are to be followed are as given below:

- Perennial plants such as drumstick, banana, papaya, curry leaf, gooseberry, mango, guava, custard apple, sapota etc., should be planted at the rear end of the garden, so that they may not shade other crops;
- The adjacent space near the central footpath can be utilised for growing different short duration varieties such as coriander, amaranthus, fenugreek, mint etc. These crops can be cultivated in different seasons;
- The fence surrounding the garden can be utilised for growing creepers and gourds such as coccinea, sponge gourd, bitter gourd, snake gourd etc.;
- The compost pits should be placed in the corner of the garden;
- The garden should be divided into small plots with raised bunds. In the bunds one can grow root crops such as onion, turmeric, ginger etc.

(A sample layout of a garden is given in Annex 1)

Vermicompost production

Women were also trained in the preparation of vermicompost. This vermicompost would serve as an excellent manure for their vegetables. As years passed by these women groups have also gotten together and established community vermicompost units which serves as a source of good quality inputs for organic farmers in the region and also fetches additional income for the women.

Women and men's experience

Women feel developing kitchen garden has given them more access to the use of vegetables and knowledge of the importance of vegetables. It has empowered them both economically and also socially. They are able to speak more confidently in meetings of their self-help groups. Women also explain how men of their household help them in procuring water for irrigation and also in ploughing the garden before sowing. When asked on how men take their participation in the kitchen garden, they said that men are very supportive.

My husband helps in irrigating the garden: we don't get enough water and fetching water is a big task, so he gets pots of water for watering the plants everyday.- Selvi, vegetable grower in Nagapattinam district.



Community vermicompost unit maintained by women beneficiaries

There are also men who have taken up kitchen gardening in their homes. According to them it is a joint effort of both men and women. They have realised the importance of consuming vegetables as it also keeps illness and other diseases at bay. They give the entire credit for this to the women of the village, CIKS and more particularly to the women of their household

The first thing my wife does when she wakes up is go and see the vegetables in the garden. Only after that I get my morning tea. Soundarajan, vegetable grower in Nagapattinam district.

Ever since we have grown vegetables we feel our health has improved and we feel quite energetic. Also since our vegetables are all organic we do not fear the ill effects of chemicals-it is our soil and the fruits that are borne from it. Rajasekharan, vegetable grower Kanchipuram district.

Community Kitchen Garden

Inspired by the success of their individual kitchen garden, seven of the twelve members of the women's self-help group called "*Ponni Iyarkai Vivasaya Magalir Kuzhu*" in Aadhamangalam

village of Nagapattinam district in Tamil Nadu started a community kitchen garden. This community kitchen garden was visited by the study team.

The financial assistance for this activity is from the National Bank for Agriculture and Rural Development (NABARD) and the technical support is provided by CIKS. To ensure that only organic inputs are used in the cultivation process, these women, in addition to being trained in vermicompost production, have also been trained by CIKS staff on production of other organic inputs for plant protection and soil improvement. Most of the members are knowledgeable in the production of inputs like *Panchagavya*, *Amirthakaraisal*, Five leaf extract, Neem leaf and Neem seed kernel extract, Chilli-ginger-garlic extract etc. The women see this as an experimental demonstration plot for organic techniques and are using this to try and convince other women in the village to start small kitchen gardens in their homes and grow crops without the use of agro-chemicals. They see it as a starting point to reducing the consumption of agro-chemicals in agriculture.

The community kitchen garden was established in August 2010, in about 10 cents of land (4,355 square feet). The land belongs to one of the members of the SHG but it had not been used for a very long time and was completely overgrown with weeds and *Prosopis*. With funds made available through a program of NABARD, the entire area was cleaned up and readied for setting up a community kitchen garden with the active and voluntary involvement of all the members.

The initial inputs for setting up the kitchen garden – seeds and vermicompost - were provided by CIKS. Other soil amendments and plant protection inputs like *Panchagavya*, *Amrithakaraisal* and Five-leaf extract were produced by the women in the site itself and stored in 200 L drums bought specifically for this purpose. The water required to maintain the garden was collected from the community water tap near the plot. In the first season the following vegetable varieties were cultivated: Ladies finger, Cluster bean, Brinjal, Radish, Bottle gourd, Bitter gourd, Snake gourd, Ridge gourd, Sword bean, Lab Lab bean, Green leafy vegetables – 3 varieties, Onion etc. Drumstick and *Sesbania* (*Agathi*) are perennial edible crops in the plot.

The entire plot was divided into a number of small manageable size beds and local seeds of the above mentioned varieties were planted. All activities – bed preparation, sowing, watering, manuring, weeding, spraying and harvesting – were done by the members of the group. The yield from this plot was shared equally among all the members of the group and excess vegetables were sold locally.

During the first growing season they harvested about 45 kg of Ladies finger, 50 kg of Brinjal, 5 kg of Lab Lab bean, 20 kg of Radish, 15 kg of Ridge gourd, 30 kg of Cluster bean, about 7-8 kg each of Bitter gourd, Snake gourds, Sword bean, Bottle gourd and Onion and several bunches of leafy greens. The yield from the plot was not very high, but the women were happy with their efforts and proud of their accomplishment – producing their own vegetables, cooperating with one another and working as a team and understanding the concept of self help and self worth. They feel that they have learnt a lot about growing vegetables with this attempt and are now better equipped to deal with production issues in the coming seasons. They are

hopeful of increasing production by fine tuning the lessons they have learnt in their initial attempt.



Leafy green plot in the community kitchen garden in Aadthamangalam district

Mrs. Damayanti, the group leader feels that a kitchen garden serves multiple purposes:

- Ensures food and nutritional security of the households
- Provides economic returns through sale of excess produce
- Acts as an experimental plot for organic techniques
- Helps in the conservation of traditional varieties of vegetable seeds
- Contributes to increased household income by reducing spending on food
- Better health from balanced diet reduces household medical expenses
- Is an effective way for women to utilize their available free time
- Contributes to financial independence for small personal expenses
- Improves their planning, problem solving and management skills.
- Is an opportunity to bond / share experiences with other women.



Woman farmer processing vegetable seeds before storage

Major outcomes

- All the beneficiaries have learnt to establish home gardens in their home backyard and get good organically cultivated indigenous varieties of vegetables for home consumption.
- Women involved in seed production and seed conservation have also earned income from the sale of vegetable seeds.
- Women's knowledge about seed production has improved. They now follow cultivation standards, processes and method to store vegetable seeds for use in the next season.
- Women also earn money from the sale of biopesticides to other women.
- Medicinal plants used in primary healthcare were given to every farmer. Method of cultivation and use for common ailments was taught to farmers through trainings.
- Awareness was raised among beneficiaries on the use of medicinal plants leading to reduction in medical expenses.
- Some members have started preparing certain herbal medicines collectively and sell it to other villagers. Every beneficiary has established a small herbal garden along with the vegetable garden. Besides herbs provided by CIKS they also cultivated some on their own based on their interest and need.
- Farmers have also used these herbs in the treatment of their cattle. For example, *Aloe* has been used for cattle which were weak and had certain types of digestive problems.

- Apart from all the above mentioned outcomes, kitchen gardens contribute to conserve the local indigenous varieties of vegetables and greens and this serve as a local gene pool and micro conservation centres.

Empowerment of Women

This intervention has left women socially as well as economically empowered. In a month they save up to Rs. 350/- by growing their own vegetables. They also sell the surplus vegetables from their garden. The women have also started a marketing federation in Sirkazhi in Nagapattinam district. Women make various savouries from the indigenous paddy grown in their farm. They have also ventured into tailoring, making jute bags, paper bags etc. With the help of CIKS the organic vegetables are also sent to various outlets in bigger cities like Chennai. The earnings from the sale are distributed equally among the members. The product preparation, accounts management, packaging of products etc., are done by women.

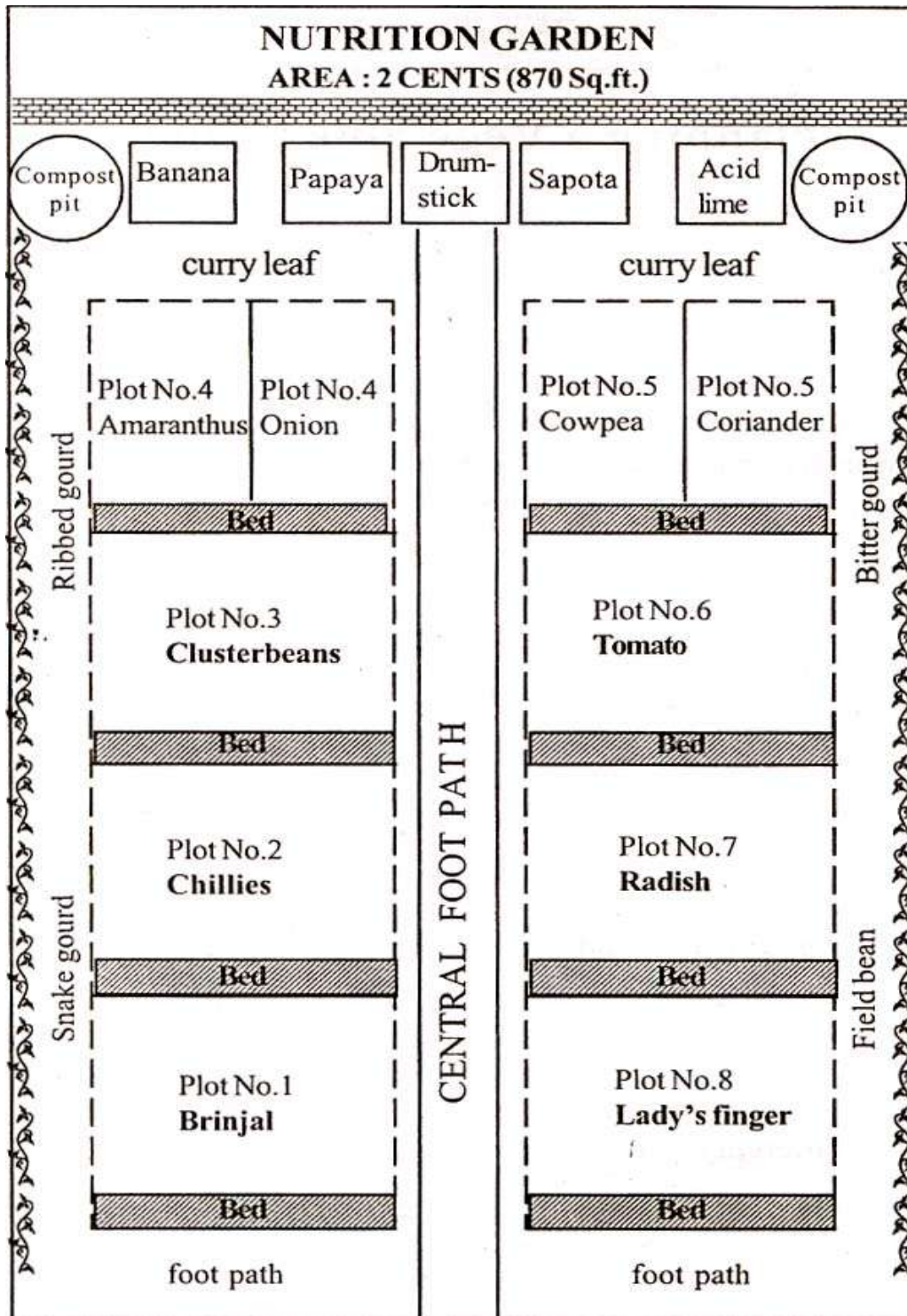
Agents of Change

Women have proven to be agents of positive change through this intervention. They not only cultivate organic vegetables in their backyard but also help other women who have not been part of the group and who are keen to start a kitchen garden. Some have become trainers and also visit other villagers to train the women there. They also share the information on herbs and the particular herbs required for specific ailments as well as on the preparation of Vermicompost and biopesticides. This has been possible mainly because of their success in their kitchen garden. Being part of self-help groups encourages them to work collectively for the betterment of all women.

Conclusion

Developing countries, particularly households that do not have access to vegetables and herbs, would surely find this programme very beneficial. Revitalisation of agro-biodiversity associated with the use of indigenous varieties is possible and necessary in all countries. While governments take steps to establish seed banks and vaults, the women in the lower strata of the society can also contribute to seed conservation. This also encourages preserving one's traditional knowledge and practice of treating primary health conditions through locally available medicinal plants.

Annex 1: Sample Layout of Kitchen Vegetable Garden



Courtesy : Mr. A. Rajangam, Asst. Prof., Horticulture Research Station, Periyakulam