FOOD SECURITY THROUGH ECONOMICALLY VIABLE FARMING SYSTEM

Current Global scenario and trend revolve around Economic values, economic returns and market economy. Any act, including interpersonal relationships, unfortunately count against the money returns that some one might get. Economic return is the buzz word of the world order. Global scenario of growing science and technology, competitive market economy, poverty index, urban rural divide, etc., act as key driving factors of change.

The multi-dimensional nature of food security has four major dimensions - **availability, accessibility, stability, and utilization**. This is defined by World Food Summit as, "when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life."

Dr Devavaram, John
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Food Availability:

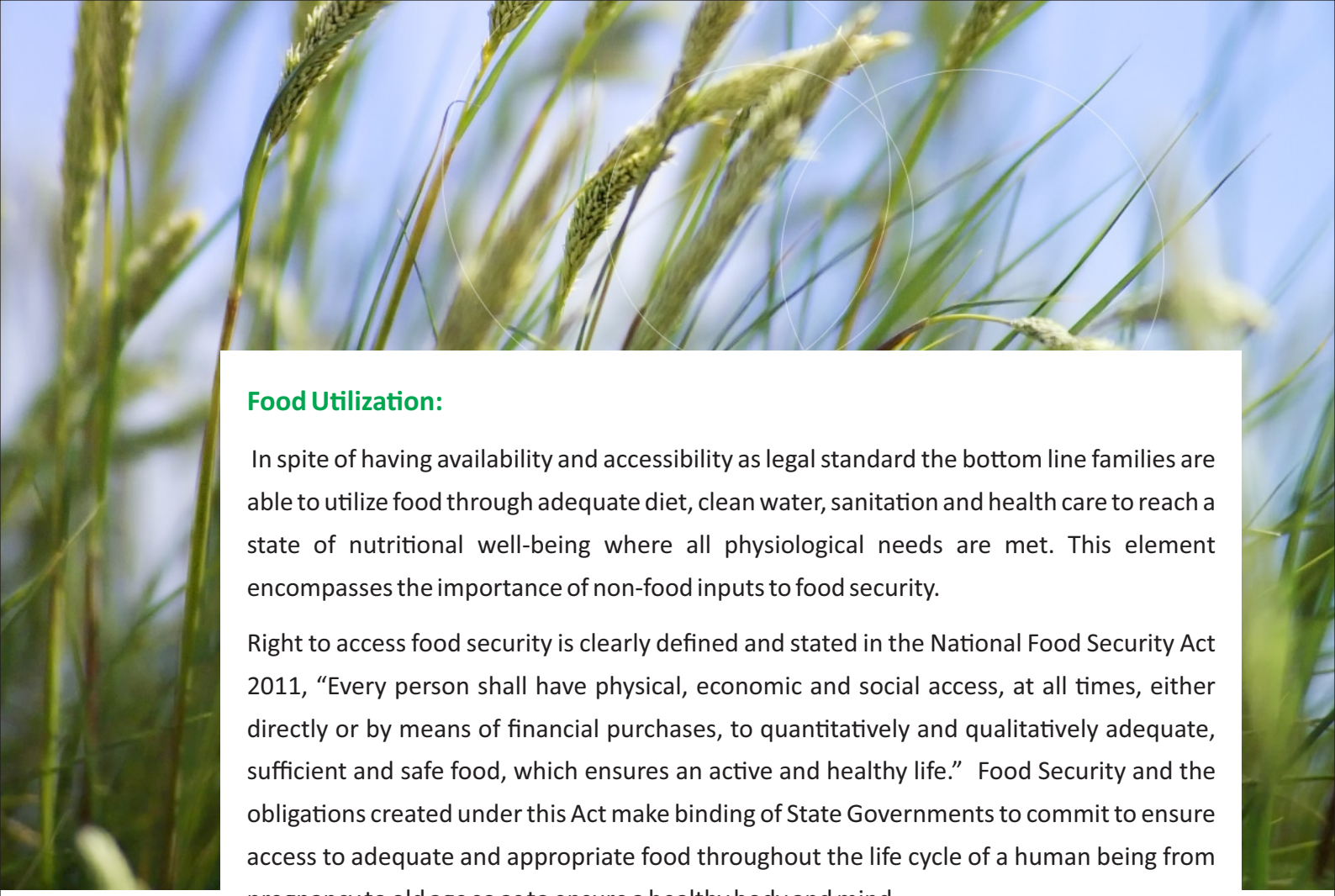
The availability of sufficient quantities of food of appropriate quality, supplied through domestic production or inputs, especially for those at the bottom lines. Food availability tends to be impaired by production failures related to labor constraints, gender inequality in land tenure and loss of productive assets needed to sustain household food production

Food Access:

Access by every individual, including those at the bottom lines, to adequate resources as basic Right and Entitlement for acquiring appropriate foods for a nutritious diet. Entitlement in this context is defined as set of basic commodities over which a person can establish control given the legal, political, economic and social arrangements of the community in which he/she live (including traditional rights such as access to common resources). Food access depends largely on household purchasing power, which varies in relation to market integration, price policies and temporal market conditions

Food Stability:

Refers to every household or individual to be food secure, having access to adequate food at all times. No individual should risk losing access to food as a consequence of sudden shocks such as economic or climatic crisis or cyclical events (e.g. seasonal food insecurity). The concept of stability is inclusive of both availability and access dimensions of food security.



Food Utilization:

In spite of having availability and accessibility as legal standard the bottom line families are able to utilize food through adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being where all physiological needs are met. This element encompasses the importance of non-food inputs to food security.

Right to access food security is clearly defined and stated in the National Food Security Act 2011, "Every person shall have physical, economic and social access, at all times, either directly or by means of financial purchases, to quantitatively and qualitatively adequate, sufficient and safe food, which ensures an active and healthy life." Food Security and the obligations created under this Act make binding of State Governments to commit to ensure access to adequate and appropriate food throughout the life cycle of a human being from pregnancy to old age so as to ensure a healthy body and mind.

Food utilization is determined by food safety and quality, how much a person eats and how well a person converts food to energy, all of which affect proper biological use of food, nutritional status and growth. Adequate food utilization requires a diet providing sufficient energy and essential nutrients, potable water, adequate sanitation, access to health services and proper feeding practices and illness management.

Current trend of climate crisis will affect all four dimensions of food security. Changing global market economy trend negatively affect basic elements of food production – soil, water and biodiversity. Rural communities face increased risks including recurrent crop failure, loss of livestock and reduced availability of fisheries and forest products. Under such circumstances, small and marginal families that are dependent on rain-fed agriculture, trees/forests, animals, water and land are at greatest risk of food shortage.

Rapid population growth, developmental activities either to meet the growing population or the growing needs of the population as well as changing lifestyles and consumption patterns pose major challenge to preservation and promotion of ecological balance. Some of the major ecological adverse effects reported include:

- Stress on increase in food demand result in high use of chemical fertilizers pesticides and weedicides; water stagnation, soil erosion, soil salinity and low productivity.
- Encroachment on habitat for rail and road construction thereby fragmenting the habitat.
- Increase in commercial activities such as mining and unsustainable resource extraction.
- Degradation of coastal and other aquatic ecosystems from domestic sewage, pesticides, fertilizers and industrial effluents.
- Diversion of water for domestic, industrial and chemical uses leading to increased river pollution and decrease in self-cleaning properties of rivers.
- Increasing water requirement leading to tapping deeper aquifers which have high content of arsenic or fluoride resulting health problems.
- Severe pressure on the forests due to both the rate of resource use and the nature of use.
- Adverse effect on species diversity and subsistence agriculture
- Conversion of productive land to some other land use such as residential sites, urbanization corporate infrastructure development, etc.

Technological innovations in agriculture and increase in area under cultivation are making desperate attempts to ensure food production to keep pace with the population growth. Unfortunately traditional knowledge and practice followed by most of the small and marginal farmers over years had not taken into consideration seriously to address the issue. In the next five decades, the food and nutrition security could become critical in many parts of the world especially in the developing countries like India and pockets of poverty in the developed countries.

WHAT IS MISSING AND WHY IT IS MISSING?

Indian agriculture too is trapped in the capitalist process which favours large-scale farming for viability and survival. On the other hand, due to severe constraints, a big chunk of the farmers are stuck with an occupation that is becoming less and less viable. Moreover, the growing vulnerability to risk and the uncertainty on several fronts (for instance, production, price, and credit) that have come to chase agriculture drive numerous farmers to end their lives. Viability is not just a question of recovering cost but is also of the farmer being able to maintain a decent living standard, invest, and overcome risk and uncertainties. There seems to be no easy way out within the present agricultural practice and system framework.

This calls for painting a different face to subsistence agriculture from daily and regular economic returns point of view and improving learning opportunity for children on the basics of eco-friendly agriculture/food production as life skill and best adaptation measure. We witness in the recent years there are more disasters, and it's becoming more frequent and intense, land and water more scarce and difficult to access, and increases in productivity even harder to achieve. The implications for children, especially those from marginalised poor families, who are vulnerable and are undernourished, are high due to food insecure situation.

Agriculture is perceived by small farming families as non viable and the reasons are attributed to various contributing factors such as non robust food Policy of government on essential commodities, subsidy system and patterns of agricultural inputs, price fixation policy for agriculture produce, cost viability of external farm inputs against market prices for agricultural produce, constant change in land use pattern, climate change, its implication to farming activities equally further aggravate the situation

The chain of middlemen in the agricultural marketing is so large that the share of farmers is reduced substantially. For instance, a study of D.D. Sidhan revealed, that farmers obtain only about 53% of the price of rice, 31% being the share of middle men (the remaining 16% being the marketing cost). In the case of vegetables and fruits the share was even less, 39% in the former case and 34% in the latter. The share of middle- men in the case of vegetables was 29.5% and in the case of fruits was 46.5%. Some of the intermediaries in the agricultural marketing system are -village traders, head load vendors, shop dealers, brokers, wholesalers, retailers, money lenders, etc.

There had been frequent occurrence of farmers, of perishable vegetable production, threw their produce on streets just to destroy show their resistance because they were not getting the right price at the market end.

Another key area of knowledge depletion which contribute to the younger generation get eliminated from agriculture farming system is the educational curriculum. Children from farming communities face double sidelining – parents do not perceive agriculture as viable economic activity given the corporate trend and the school system do not accommodate agriculture within the syllabus but make it as specialised subject only at the higher levels. In the presence of such a gap in syllabus/curriculum it is highly important sufficient space and attraction created for children to learn food production or appropriate economically viable food production opportunity given to children, especially those from small and marginal farming families. Thus, there is no motivation for a small farmer to encourage his/her wards to continue agriculture operations. This is further stimulated by recurrent droughts, crop failure, pest attacks, shifting to mono culture, cash crops, etc., most of the land left fallow for one or two consecutive years, due to above reasons, and subsequently productive lands are being sold for non agricultural purposes such as real estate business or industrial development. Added attraction is laid on growing corporate culture, best money returns, ready employment opportunities and craze for IT industries.

There are many reasons why younger generations turn their back towards agriculture.

- The sufferings they have seen of their parents(if they are from agricultural family)
- No fixed or variable returns till the product are marketed and over dependence on the nature. some calamity strikes they are in losses and debts
- Lack of facilities that the metros provide if they take up agriculture as a careered)
- Ambition to enjoy all the facilities of the urban life style and the growth that the urban promises.
- For youngsters there is also pressure from their peers and friends. Farming tends to be looked down upon, as an occupation for those who have failed to get a paid job in a more respected area like medicine or engineering.

All these factors are pulling the young generation away from agriculture. If not completely but to an extent Government can promote agriculture through various means such as free education if they take up agriculture, some subsidies, loan facilities for those who want to go for advanced technology and proven methods of increasing crop efficiency.

This growing trend place a great challenge on us to make farmers feel or get convinced to experience/witness agriculture as equally economically viable activity and profitable on a day to day basis. This basic need of the hour is attempted to address through this concept note.

Crop intensive farming pattern:

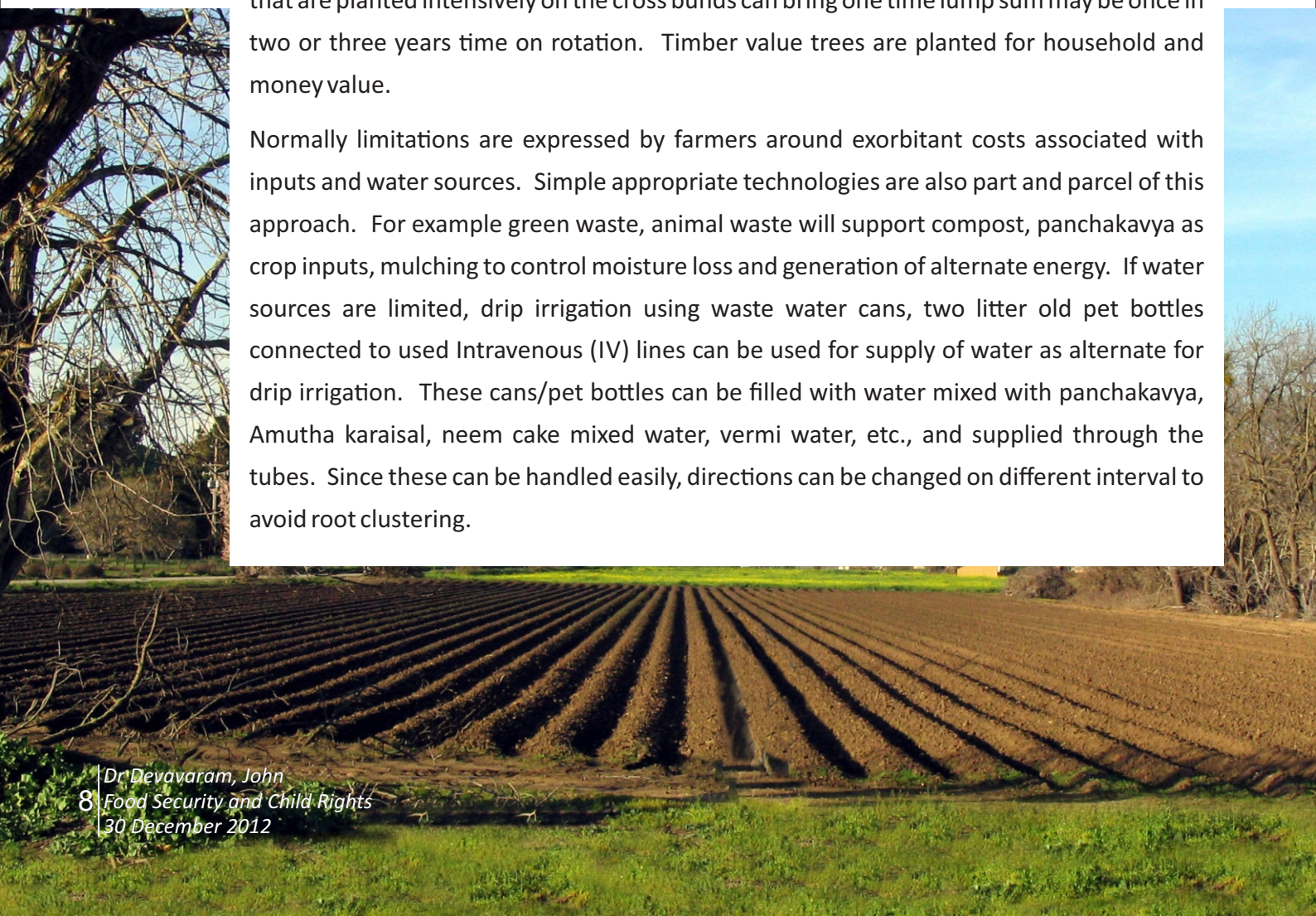
A small farmer owning less than one acre or so should be able to perceive working on his/her farm as full time occupation and get adequate returns to meet family requirement and make money returns on a daily basis by selling produce from the piece of land. Hence the cultivation is designed in such a way that the farmer is able to achieve the target.

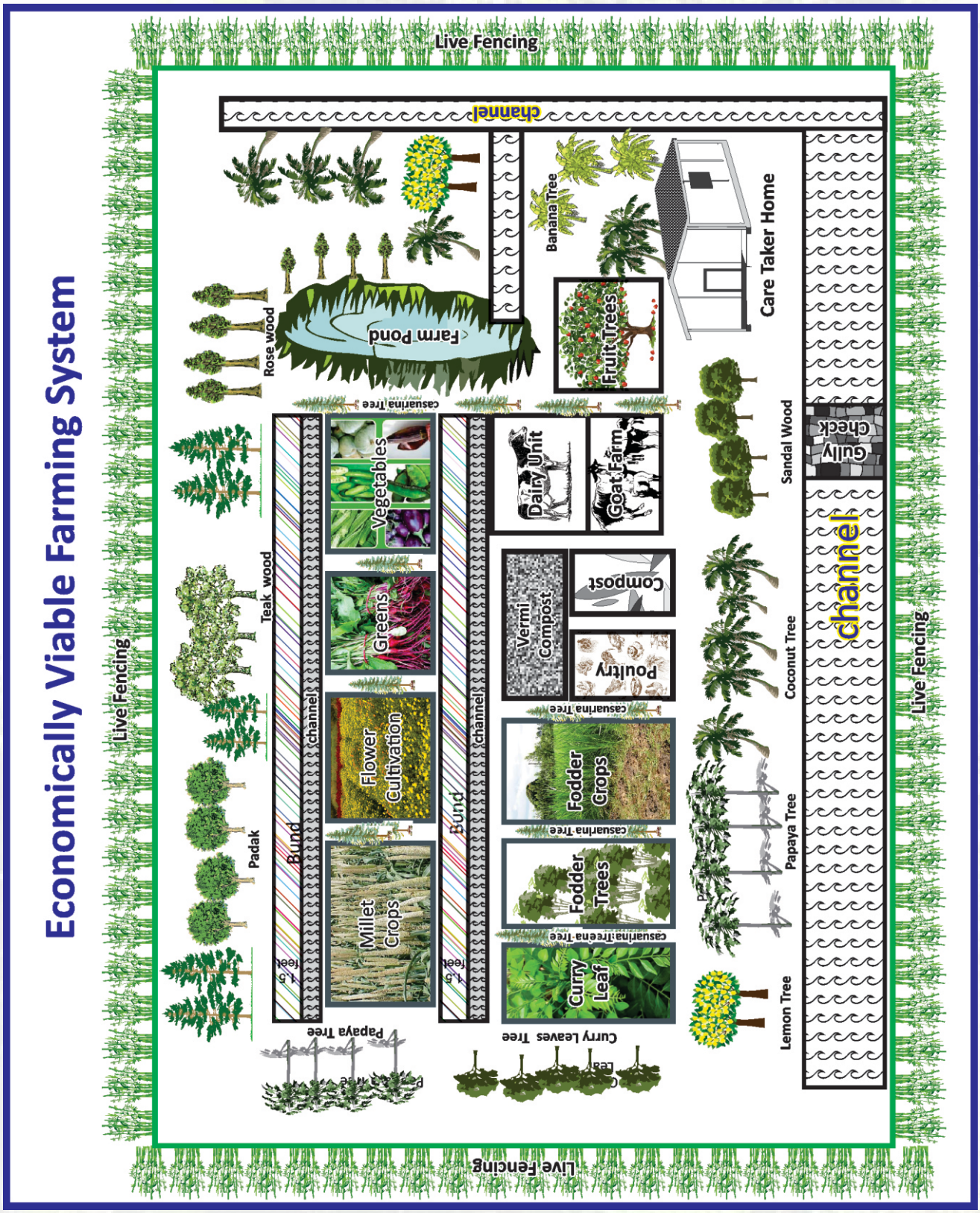
In designing, the shape of the plot is not necessarily square/oval or round but it flows with land availability. Similarly the crop selection for individual cultivating plot should also be based on local market demand. For example, if you notice, in the above diagram we have planed for curry leaves on the left last plot including the bund since there is daily demand in the local market for curry leaves @Rs.25/- per kilo. All together, if you observe, a farmer on rotation in the above design can easily make Rs.5 to 6 hundred on a daily basis.

This is slightly more than what any skilled labour can earn in rural and semi urban status. Thus the farmer can feel happy that he is able to make concrete/physical cash on a daily basis with available resources similar to those of other occupations. In addition the farmer can meet his/her family daily food requirements fresh and nutritious from his/her own farm. Sources of daily income from the above plan include --- sale of milk, eggs, vegetables, flowers, greens, Papaya fruits, curry leaves and lemon.

Also to meet bulk expenditures such as family sickness/ special occasions Casuarina trees that are planted intensively on the cross bunds can bring one time lump sum may be once in two or three years time on rotation. Timber value trees are planted for household and money value.

Normally limitations are expressed by farmers around exorbitant costs associated with inputs and water sources. Simple appropriate technologies are also part and parcel of this approach. For example green waste, animal waste will support compost, panchakavya as crop inputs, mulching to control moisture loss and generation of alternate energy. If water sources are limited, drip irrigation using waste water cans, two litter old pet bottles connected to used Intravenous (IV) lines can be used for supply of water as alternate for drip irrigation. These cans/pet bottles can be filled with water mixed with panchakavya, Amutha karaisal, neem cake mixed water, vermi water, etc., and supplied through the tubes. Since these can be handled easily, directions can be changed on different interval to avoid root clustering.





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Initially it will be tough to convenience farmers since most of them will excuses related to various constraints. But we need to help them to reflect and answer the following questions. "Climate Change" – yes, it is already on, it is global and it has already making negative impact on agriculture production (recurrent drought, disaster, new pests, diseases, etc.) **SO WHAT??** Soil type is very bad! **SO WHAT??** No water sources! No rains!! **SO WHAT??** No doubt these are all negative factors and realities. Most of it is complex and require multi-stakeholder efforts, which beyond farmer's reach/control. But with all that everyone (producer as well consumer) need to survive. We just cannot die without food and make future fragile for our children. If we continue to say above excuses, we will continue to depend on subsidies and public distribution system. This means we are moving away from our basic food security and sovereignty. Thus it is important we create/set up viable models to motivate many more farming community members, especially children to take up the challenge of food security, prove agriculture economically viable in the market driven corporate world, show positive attitudes and effectively address the issue of poverty and hunger.

If farmers fallow this pattern of "Intensive cropping and land use pattern" food security can be ensured on a national level which inturn will contribute to India easily addressing poverty and hunger reduction/eradicate (MDG1). But this calls for attitudinal and perception change on farmer end and strong will on the part of system to make "Food Security through Farmer friendly policies."