Sri Lankan Traditional Food Cultures and Food Security

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Introduction

Food is the major necessity of any living being. Without food, no life will sustain. Therefore, any living being on the earth has to make sure of their food security. The best examples are found in the animal world. Ants collect seeds and other sources of food before rain commence, some birds in the northern hemisphere collect and store acorn before winter, hibernating animals accumulate fat in their body as reserves before they go for long sleep. For human, food security is not a new phenomenon. During the ancient times, Sri Lanka has been a country of self sufficient and prosperity. Food security was not a problem and never a concern. People in Sri Lanka not only had food and other essential commodities for themselves, but also they had enough to share with others.

It is important to understand what food security means in today's context. According a Position Paper of the Canadian Home Economics Association on Food Security (2005, having food security means that "Access to food is available to all people, at all times, in order to have an active, healthy life". Food security also encompasses household, community, national and global levels. Food also needs to be available, accessible, affordable, culturally and environmentally appropriate. Ancient food security concepts were well explained in traditional life styles as "*arapirimessma*" (minimizing waste) and "*sakasuruwama*" (appropriate savings).

Nowhere in the history of Sri Lanka recorded food insecurity. All required food was produced locally. There are many historical evidences to support the ancient food security in Sri Lanka, not only in terms of self sufficiency but also exportation of rice to other countries. One classic example is that when Prince Vijeya arrived at Thammenna with his seven hundred people, Kuweni had to hide them from her tribe and had enough food to feed them until they capture the kingdom of Yakshas. During that time Sri Lanka known to be agriculture-based country (Perera, 2008, unpublished). This itself show the food security existed in ancient Sri Lanka. Another example is the transport of rice from Pollonnaruwa, via *Kalinga Ela* to Trincomlee harbour for shipping. An Indian chronicle "*rasatharangani*" explains how rice was imported to India. According to the latest archaeological excavations at Horton Plains, Sri Lankan agriculture has a known history of more than 18,000 years (Premathilaka, 2000).

Agrarian Culture

Sri Lanka, being an agricultural country, is based on agricultural economy and society. The ancient concept of agriculture, especially the rice culture was based on the concept of "*tank, field, temple and the village*". These four components of the agrarian culture were woven together to lead into prosperity. Food production was based not only on the crops that were grown, but also with the religious rituals, astrology, and both biotic and abiotic components in the environment (Upawansa, 2005). Following this concept, great Sinhala kings gave priority for food production. Even during their march to battle fields, they never forgot the food production and built large tanks whenever they found a suitable location. *Sorabora Wewa* is one such example, built by King Dutugemunu's giant "*Bulatha*" and his wife.

In traditional Sri Lanka, there were no farmers, because they never owned farms or did farming for money. They were simple cultivators. According to the American Entrepreneurs' Commission "agriculture is not an income generating process and at the same time it cannot consider as a business or an industry and it is essentially a everybody's service and a public responsibility to utilize and conserve the land on behalf of the nation" (Senanayaka, 1935). Cultivation was considered as a noble service. Therefore, even the kings at that time involved in the initiation of cultivation process called "*wap magula*". They used white oxen decorated and tilled the soil with golden ploughs. Therefore, the tribes or the caste of people who were engaged in cultivation was known as "*govigama*"and considered as the highest caste of the then social system. Robert Knox (.1681.) in his book on Sri Lanka mentioned that "when the cultivator washes his mud off, he is suitable to the throne".

Food production was on a collective basis called "*aththama*". Every adult in that community involved in cultivation both male and females participate to share the labour. This involved land preparation, planting, weed control and plant protection, harvesting and threshing. Food, especially the rice was considered as the most important crop among all cultivated crops. Therefore, rice was treated with much respect. This was commonly known as "*budhdha bogaya*"(Wimalakeerthi, 2002).

Rice or any other crop in the past were never sold but shared with the needy. After every harvest, the storage bins called "*bissa*", or "*atuwa*" were always filled with harvest. The number of "*bissas*", or "*atuwas*" that one possessed showed his wealth and the social status (Dalupotha, 2001). In agrarian culture of Sri Lanka, there were two very valuable concepts, "*beda hada geneema*" (share and grow), this means when one found any interesting plant material which is rare and valuable, they shared it among others to cultivate and propagate, "*Hada beda geneema*" (cultivate and share) this means things that were cultivated were shared among the community. These traditions clearly exhibit the food security and the concern about others for food. The prosperity and the supply of food was plenty, they even left a part of the rice field unharvested for the birds to live on and called this "*kurulu paaluwa*".

Food Availability

Sri Lanka being an island with very high biodiversity, food had never been a problem. This is well documented in ancient chronicles written by Robert Knox (1681) and , Tennent (1860), Most of the food items that were enjoyed by the ancient Sri Lankans were not grown by them. They were found everywhere, naturally growing. The major reason for this was the environment conservation and the natural resource sustainability by our ancestors. During such era, not only the food crops, but also the medicinal and timber crops were in abundance. Until last few centuries, food was produced not for sale, but to consume and share.

Most of the food was obtained from natural sources. Dietary proteins were obtained mainly from vegetable sources. They were derived from leafy vegetables and pulses and their

grains. Most of the leafy vegetables were collected from the home garden, paddy fields and nearby woods. Pulses were grown in home gardens, in paddy bunds or in chena. There were many varieties of delicious mushrooms available for nourishment.

Food Cultivation

Food cultivation was a science they experienced and connected with their culture. Sri Lankans very well understood and experienced the weather pattern and the other climatic changes. Unlike present day, they did not cultivate in an *ad hoc* manner. Before every cultivation season, they had a well-prepared plan, where all the farmers and the village authorities met, discussed and took decisions. Their cultivation was synchronised with the weather and the season. The cropping pattern and the crops were selected according to the plan. This practice was known as *"kal yal balaa govithena"* (cultivation at right season, right time). Every farmer in the village, including the Buddhist priest, was involved in this process, Therefore, crop failures were minimal and bumper harvests were assured.

The fertility of the soil and the small tank cascade system facilitated for the high and continuous food production chain in the dry zone. There were about 12,500 small tanks scattered throughout the dry zone and reports indicated that they had an irrigation potential of about 100,000 ha. (Gunasena, 2000). However, during the colonial era, these small seasonal tanks were neglected and concentrated on the perennial large isolated tank system, resulting in the collapse of cascade irrigation system, which sustained the year round food production and food security. Due to the long negligence and abandoning of small tanks and other canal systems (giant canal, Minipe canal, etc), the irrigation facilities available for local food production were diminished. It is important to understand that major source of food crop production in traditional Sri Lanka was from the dry zone which covers more than 2/3rd of the country's land mass.

Food Production Systems

Food production system in ancient Sri Lanka was categorised by some scientist as a "subsistence system". This was a more than self sufficient system. Then people had enough food not only for themselves, but also to share with others whenever necessary. They cultivated and harvested enough and donated to people who did not have land, money, labour/ strength or any other resources for cultivation. They always had a habit of donating food to the temple, poor, sick and old. Anybody who visited home during meal time was invited to share and enjoy a meal.

Classic example for traditional food production system was "home garden system" (HG). Other than salt, they cultivated every thing in their home garden. These include vegetables, fruits, spices and condiments and even essential basic medicinal plants used for home remedies. In addition, they had fibre and timber trees for domestic use. Energy was never a problem. Required firewood was collected from home garden or nearby woods. Oil for cooking was extracted from coconut (*Cocos nucifera*), *Mee* (*Madhuca longifolia*), Sesame (*Sesamum indicum*). As a fuel, coconut oil, and *Kekuna* (*Canarium zeylanicum*) were used. In addition to these, cow and buffalo ghee were used for both purposes.

Another, simple form of home garden system which was common to every household was, "kitchen gardens" (KG). In KGs, every material that is required for the preparation of food and beverage were grown. In addition, medicinal herbs and other essentials were present. Sugar and syrups (for beverages and sweet meat) were obtained from the trees of the homestead. Sugar (jaggary) was derived from coconut, fish tail palm (*Caryota urens*) and Palmyra palm. Syrups and trickle were derived from the above palms and *Mee* flowers, *Weera* fruits. Honey was obtained from hives of different kinds of bees present either naturally or at the home garden.

An advanced system of HG was present in the mid country, called "Kandyan Forest Gardens" (KFG). This was a highly sustainable system in both productivity and environmentally. The difference between other home gardens and KFG was that KFG was with a high tree canopy and in a gradient topography. But the system was such it caused minimum erosion. Usually, the house was located at the centre of the land. It provided food, timber, fruits, spices, medicine and fibre.

Both these systems were self sustaining. They never depended on outside inputs. Therefore, the dependency on inputs was minimal. Seeds were traditional varieties, produced by the cultivator from selected stocks. The production was diverse and year round. Therefore, they were self sufficient in food. Therefore, outside market was not heard and requirements were not controlled by market price and the demand. Fertility of the soil was the main concern. Therefore, rather than nourishing the crop plant directly as we do today, they nourished the soil. Sustainable soil fertility was maintained by using natural manures such as green leaves, compost, animal manure (cow, buffalo and goat dung), bat excreta and straw. These natural sources of manures enriched and buffered the soil by improving soil physical, chemical and biological characteristics. All these led to high and sustainable food productivity.

Backyard Livestock

Livestock was an integral part of the HG or KFG system. They were maintained as small backyard system, which provided required high-quality animal proteins sources such as eggs and milk. Meat was rarely consumed, and never slaughtered animals they raised. If meat was consumed, they were mostly *"game meat"* (wild animal meat) such as wild boar, venison, iguana, porcupine, jungle fowl, etc. There was no scarcity of *"game meat"* sources in the past and the killing of wild animals for meat (game) was allowed with restrictions. When a hunt was done, the meat was shared among the community. The share depended on the status of a person.

Most of the households had a small backyard poultry unit consisting of few hens and a rooster. Each year, few selected eggs were hatched to maintain the flock size by replacing the old animals. The extra animals were given to their neighbours for them to raise. Many rural households had cattle or buffalo or both. They were primarily kept for power. The draught power for cultivation, hauling and transportation was obtained from these beasts. In addition to power, they also provided valuable manure for the fields and milk for the nourishment. Some had goats and their milk was extracted for domestic consumption. Goat milk was considered as a therapeutic food for allergies and asthma. Therefore, goat milk was high in demand. All these animal products were produced in the backyard without any external input and at no cost (Perera, 2005).

Diversity of Food

Traditional food types, preparations and consumption patterns were more diverse than today. Traditional people consumed food not only for *"nourishment"* but also for *"therapeutic purposes"*. Their diet consisted of cereal grains (rice, maize, millet, sorghum, etc), green leaves, roots, yams and tubers, pulse grains (green gram, cowpea, black gram, etc.), vegetables, flour from different sources and oil. Protein was

mainly derived from vegetable sources such as winged beans, velvet bean, drumsticks, yard long bean and protein rich leafy vegetables (manioc leaves, sesbenia, cassia spp., etc.). Major sources of animal protein were fresh water fish and milk, which were available freely. *Game meat* was enjoyed less frequently. Fresh milk consumption was not common among the adults. They very well understood that the nutrients derived from milk (Protein and Calcium) could be easily obtained from vegetable sources. So, they allowed the calf to drink as much as milk it wants.

Different food had different and unique system of preparation. All ingredients were natural. Some food types were prepared only for some occasions or purposes. Some food types were specially prepared for special people. The food that was prepared and taken to the rice field to serve the people was called "*ambula*". Ambula consisted of local vegetables and rice. The curries of ambula was made sour by using tamarind (*Siaymbala*) or garcinia (*Goraka*) to make it enriched with vitamin "C". Other such special preparations were "*niyabalawa*", "*aanama*", "*ambul thiyal*", "*malluma*", "*baduma*" "*themparaduwa*", "*eta maluwa*", "*hath maluwa*" "*thembuma*", etc. With different flour food items like "*pittu*", "*thalapa*", "*rotti*", "*wandu*" "*kenda*" "*helapa*", "*aluwa*","*welithalapa*", etc. were prepared. This shows, with diverse food stuffs, how varieties of delicious dishes were prepared. The diversity of preparations made provided an opportunity to prepare a palatable dish with whatever the food stuff available.

Jak (*Artocarpus hetrophyllus*) contributed immensely to the ancient food security. This was commonly known as "*bath gasa*" (rice tree). The fruit was used for many preparations depending on the maturity of the fruit. The most immature fruit, "*polos*" was used for "*polos maluwa*" or delicious and famous "*polos ambula*". Little mature *polos* was used for "*polos melluma*". "*Herali melluma*" made with half mature fruit by chopping the whole fruit into small pieces and very popular in alms giving ceremonies. The fully mature unripe fruit was called "*kos*", in which the bulbs (pericarp) are very rich in starch. Once boiled, this was an excellent substitute for rice. Even today, in the rural sector, many people who live below poverty line, consumes boiled jak bulbs at least as a major meal very frequently. This also used to prepare "*kos mellun*" and "*kiri kos*". The ripened fruit was a delicious fruit used as a local desert. Seeds are rich in starch and were commonly used cooked. When roasted or fried, jak seeds provided a savouring snack (Gunadasa,2007).

Traditional people, especially in the dry zone, did not much depend on coconut milk for cooking. They often used ground seeds of "*kekiri*" as a substitute. Red chillies were not much used. Black pepper was commonly used to spice the food. If red chillies were used, they had their own supply from local varieties which were in abundance and different kinds. Use of chillie in food preparation was introduced by Portuguese. Soaked boiled rice was pounded in a mortar, and then dried in the sun to prepare "*habala pethi*". *Habala pethi* was mixed with juggary and scraped coconut, then pounded again to make a healthy and delicious breakfast.

Conservation of Excess Food

Traditional Sri Lankans grew plenty to consume and to share. The surplus was conserved to be used in the future. Mostly, food conservation was done for two reasons. Firstly, to ensure future food security, then to make available during the leaner periods. Most of foods that were conserved were seasonal in production. Therefore, the conserved food satisfied the needs during the off season. Conservation was done using simple, appropriate, economical and sustainable local technologies. To conserve the excess food, they were either sun dried (vegetables, mushroom and jak, etc.), smoke dried (meat and fresh water fish), buried in dry sand (lime, yams and tubers), salted (meat and fish), pickled (vegetables and meat), fermented (milk), immersed in honey (meat), etc. The *game meat* was preserved with their fat and the product was known as "*kurukkal*". This can be made only with meat that contained sufficient fat. Therefore, *kurukkal* can be made only from meat of wild boar and mature venison.

During the dry season, the tanks in the dry zone gradually start to dry. Finally, when the water capacity of the tank was so low that the fish in the tank cannot survive, the villagers were organised under the direction of the "Vidhana", and caught only selected kind and size of fish using "*weesi dela*" (casting nets) and "*karaka*". The fish that were caught were distributed accordingly. Each person gets a large quantity of fish sufficient for months. The excess fish was cut open and dried in the sun. Dried fish was wrapped in a jute sac and hung over the fire place. Often this store was sufficient for the family until the next harvest.

Jak seeds were boiled and bulbs were half-boiled and then dried to be conserved as "*atu kos eta*" and "atu *kos madulu*", respectively. Jack seeds were also conserved in dry sand as "*weli kos eta*". In woods, other wild jack varieties were in abundance (*wal del, bedi del, kos del*). During the season, the seeds were collected and stored for future use. Bread fruit also conserved in the dry form during the season, after cutting into small pieces.

In traditional food preservation, "*atuwa*", "*doom messa*", "*bissa*" (both paddy and kurakkan), played a major role. There is no perfect structure found even to date to store paddy better than "*bissa*" Dalupotha, 2004).

Raw fresh milk was never sold or not given to the neighbours, due to superstitious reasons. If to share milk with a neighbour, it was always given after boiling or processing (Perera, 2005). The excess milk was always processed and conserved. The major milk-based processed and conserved products were "*kiri*" (milk), "*dee kiri*" (curd), "*yodhaya* (cream), "*moru*" (whey) and "*geethel*" (ghee). These were popularly known as "*pancha go rasa*" or "*pasgorasa*" (five essences of milk). These five dairy-based food items were considered as noble food. According to Robert Knox's records, these were relished in daily diets only by the noble people of Sri Lanka. The ordinary and the poor used them occasionally during special meals.

Food Habits

Traditional Sri Lankans ate to live, not lived to eat. Therefore, they were always concerned about the type of food they select, quantity and the quality. The food security and the availability of food in traditional Sri Lanka was so rich, the food consumption was based on the type of person (child, adult, old), physiology (sick, pregnant, nursing), degree of activity (less active, energetic), and the type of meal (breakfast, lunch, dinner). Different rice varieties were served for pregnant, nursing mothers and sick and monks. For example, pregnant mothers are fed with "*maa wee*" varieties, small children and aged persons who cannot easily digest were fed with "*heenati*". There are records that in ancient Sri Lanka there were more than 2442 different varieties of rice (Pangnasekara, 2003).

Certain foods were not mixed and taken at the same meal. For example, if meat is consumed at a meal, consumption of curd as a desert was restricted (Kumarasinghe, 1987). Many more traditional food habits are given in many ancient chronicles.

Food and Health

Traditional people consumed food for both nourishment and health. They had recognised foods that were compatible. Incompatible foods were always avoided. No matter how abundant the food was, if it had any deleterious effects, such food was always omitted from regular meal. Food that was available was always healthy, since they were grown naturally or natural methods. No artificial chemicals or synthetic fertilizers were used. The seeds were naturally hybridized and fertilized.

Availability of food was plenty. The selection of food was based on the need. In children to overcome the burden of intestinal worms a "*mellun*" prepared from "*Eth thora*" (*Cassia alata*) or "*Erabadu*" (*Erythrina indica*) were used. For diabetic patients, curry of bitter gourd (*Mormodia aurandica*) was given. Likewise, there are many dietary recommendations to use for therapeutic and treatment purposes.

Many Asians and Africans suffer from a digestive disorder called "*lactose intolerance*". This problem was recognized by traditional Sri Lankans long before. As a result, they preferred processed milk to fresh milk. This was evident in traditional text that, Sri Lankans did not drink *milk but ate milk in* the fermented form as curd. Curd was consumed with rice and as desert after main meal. To day scientific evidence have proven fermented products such as curd contains large numbers of beneficial bacteria (*Lactobacillus spps.*). These beneficial bacteria containing foods when consumed act as "*Pro-biotics*" that they will flush out harmful bacteria in the gut (*Salmonella, E. Coli etc.)* through "*competitive mass displacement*" *mechanism.*

Many health authorities and nutritionists are heavily concerned about the quality of the food that is consumed today. They could cause many health risks due to the use of high doses of synthetic fertilizers and pesticides. This is evident in present medical reports. The rate of diabetics, especially juvenile diabetics, food poisoning, cancer, cardiac problems and renal failure. Still there is no firm opinion for the renal failure in the Nortwestern Province among the rural populations. Some suggests the cause as the change of cooking utensils from traditional clay pots to aluminiumware, causing aluminium toxicity. Others suggest accumulation of cadmium heavy metal in water due to the excess use of synthetic fertilizers and pesticides. To date this problem is not understood, the causes are not known and the people are continue to suffer. All these are due to the deviation from traditional foods, dietary habits, food production systems and preparation methods.

Modern Food Production

Modern food production system is external input dependent. Mostly depending on hybrid seeds of foreign origin and therefore, they are highly vulnerable to pest and disease attacks. The disaster to our food production and the food security started since the introduction of so called "green revolution", which introduced commercial and input dependent agriculture. Changing "*cultivators*" to "*farmers*" or "*commercial producers*". Today with further deterioration of traditional system and appropriate practices, the cultivator has to depend on the input suppliers, and for the products, market sources.

The soil fertility is highly eroded, environment is highly polluted, and soil productivity is diminished to the utmost. As a result, the crop yield per unit of land and unit of input is diminished. Traditional seed sources and varieties are extinct. Poor farmers have to depend on foreign sources or imported hybrid seed, which needs to be replaced every planting season. The traditional corn varieties (*mukalan bada iringu)* are almost lost from the system. Traditional vegetables such as "*niyan wetakolu*" (smooth lufa), "*lena iri batu*", "*thalana butu*", "*polon mae*", "*avara spp.*", "*hain kekiri*", "*hain wattakka*" to name few are completely vanished. Their responsiveness to fertilisers and pesticides are high. Therefore, the cost of production per unit of produce is high. In this context, self sufficiency is unreachable in near future. Leave away the food security for the future; assurance of day-to-day meal of people below poverty level is doubtful. Due to sky rocketing inflation and high cost of production of food commodities, the purchasing power of the consumers are gradually loosing.

Many tropical countries like Thailand, India, Pakistan, Bangladesh, even Chine recognized the importance of indigenous knowledge and traditional methods in agriculture. Therefore, with the advancement of science they did not embraced the new technology and replace the traditional knowledge system and practices. They were wise enough to screen out the good from the bad in modern technology. They had a vision to foresee the ultimate outcome of modern technology in another century. Therefore, they sorted out the most appropriate and effective components that are in harmony with their existing system. Instead of complete replacement, they use selected sustainable and appropriate technologies to make their traditional systems and methods more meaningful and effective. As a result those countries are enjoying self sufficiency in food and well secured.

Modern agriculture instead of utilizing the soil fertility for crop production, it "*rapes*" the soil. It removes through high crop harvests more than return to the soil. Removes fertility of the soil and add toxins to the soil as synthetic fertilizers and pesticides. This will kill the soil natural and beficial organisms, break the soil texture and structure making soil unstable and barren, Destroy the soil biotic and abiotic balance to minimize the sustainability. The modern agriculture works against the low of return or the natural resource recycling principle, causing soil to become unproductive, prone to erosion day by day. The short sighted and opportunistic anthropogenic activity will disturb the soil and the environment making it inhabitable not only for the mankind, but also for thoer living beings as well. (Howard, 1940)

It is high time to turn back and recognise how our ancestors sustained the food production and food security. Recognise and appreciate the methodologies and practices they adopted not only in food production, but also in food preparation, conservation and consumption.

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